



FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

All sections must be addressed, or the application will be considered invalid



I. APPLICANT INFORMATION

A. Applicant Name: Bitter Root Water Forum

Mailing Address: PO Box 1247

City: Hamilton State: MT Zip: 59840

Telephone: (406)375-2272 E-mail: andrea@brwaterforum.org

B. Contact Person (if different than applicant): Andrea Price

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ E-mail: _____

C. Landowner and/or Lessee Name (if different than applicant): Paraic Neiburgs (and Montana Fish, Wildlife & Parks)

Mailing Address: 31 Fort Missoula Road, Suite 3

City: Missoula State: MT Zip: 59804

Telephone: 406-829-3773 E-mail: neibergs@qwestoffice.net

II. PROJECT INFORMATION

A. Project Name: Threemile Fish Passage

River, stream, or lake: Wheelbarrow Creek (tributary to Thereemile Creek)

Location: Township: T9N Range: R18W Section: S6

Latitude: 46.571500 Longitude: -113.900485 *within project (decimal degrees)*

County: Ravalli

B. Purpose of Project: _____

This project will improve habitat and population dynamics of Westslope Cutthroat Trout by:

1. restoring a more natural stream channel at the site of an incorrectly-sized culvert;
2. reducing the erosion of sediment from a native-surface road into the stream;
3. facilitating fish passage through the construction of grade control weirs.

C. Brief Project Description (attach additional information to end of application):

Near the southern border of Threemile Wildlife Management Area, an access road crosses Wheelbarrow Creek. A too-short culvert was installed incorrectly under this road, at a grade that created an unnaturally steep channel. This resulted in a loading of sediment upstream of the crossing and a perched culvert end downstream that inhibits the passage of fish. This culvert will be removed and replaced by a bridge. This will reduce the interference of human infrastructure to the channel and restore it to a more natural state while maintaining road access for recreational users of Threemile WMA.

Further, Wheelbarrow Creek contains what are presumed to be pure strain Westslope Cutthroat trout (FWP is currently awaiting genetic confirmation) both upstream and downstream of this road crossing. Trout below the pipe are unable to access the upper section of the stream (2.5 miles), resulting in a disconnected fish population. The removal of the culvert alone will not solve this problem due to the elevation difference above and below the pipe; following removal of the pipe, grade control weirs or a hardened riffle will need to be constructed to prevent excessive channel incisement and erosion as well as allow for upstream fish passage.

Furthermore, the native surface road which passes over Wheelbarrow Creek at this site is highly susceptible to erosion. An unnatural amount of sediment is carried into the stream by heavy rain events, which can be detrimental to aquatic species as well as channel morphology. Further, washouts make the road difficult to drive on. To address this problem, road BMPs will be implemented on 1.7 road miles surrounding the Wheelbarrow Creek crossing. These activities, including recontouring and grading, will discourage erosion into the stream and make the road safer to navigate for Threemile WMA's recreational users.

This project is in association with, though goes beyond the scope of, FWP's "Forest Habitat Restoration Plan".

This project is in association with, though increases the scope of, FWP's "Forest Habitat Restoration Plan". Thus, the work described here will be done in close collaboration with FWP. Jason Parke (FWP Forester) will assist with project management and coordination with contractors. Jamie Mongoven (FWP Engineer) will create all project designs and assist with construction oversight as needed. Jason Lindstrom (FWP Fisheries Biologist) will assist with in-channel work (design and construction of weirs) and surveying of the fish populations.

- D. Length of stream or size of lake that will be treated: 2.5 miles reconnected
- E. Project Budget:
- | | | |
|--|-----------|--|
| Grant Request (Dollars): | \$ | 19,420 |
| Matching Dollars: | \$ | 44,168.12 |
| Matching In-Kind Services:* | \$ | 18,660 |
| <i>*salaries of government employees are not considered matching contributions</i> | | |
| Total Project Cost: | \$ | 88,908.12 (includes \$6,660 in government salaries) |

- F. **Attach** itemized (line item) budget – see *budget template*

- G. **Attach** specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support and fish biologist support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete a *supplemental questionnaire*. (<http://fwp.mt.gov/fwpDoc.html?id=36110>)
- H. **Attach** land management & maintenance plans that will ensure protection of the reclaimed area.

III. PROJECT BENEFITS (attach additional information to end of application):

- A. What species of fish will benefit from this project?

Westslope Cutthroat Trout. Sampling by FWP in 2019 suggests that this is the only species present in Wheelbarrow Creek.

- B. How will the project protect or enhance wild fish habitat?

An evaluation by Jason Lindstrom, FWP Region 2 fisheries biologist, revealed that the culvert on Wheelbarrow Creek is likely a complete upstream fish barrier at most flows. This culvert will be removed and replaced by a bridge. The channel grade at the road crossing is sufficiently steep such that after removal of the culvert, grade control weirs or a hardened riffle will need to be constructed to allow for fish passage as well as prevent channel incisement and excessive erosion.

- C. Will the project improve fish populations and/or fishing? To what extent?

The population in the upstream segment is isolated to a limited portion of stream. Additionally, the downstream population would benefit from reconnection to the upstream population and a larger habitat. This could improve fish populations and would also enhance the long term viability.

- D. Will the project increase public fishing opportunity for wild fish and, if so, how?

Wheelbarrow Creek is a tributary to Threemile Creek, a tributary to the Bitterroot River. Fishing for wild fish, including Westslope Cutthroat trout, is a beloved activity in the Bitterroot River and in its headwaters as well. Improvement to trout habitat and restoring healthy populations in the headwaters can have be positive for public fishing opportunities, both on-site and downstream.

- E. The project agreement includes a 20-year maintenance commitment. Please discuss your ability to meet this commitment.

FWP will be responsible for maintenance of the bridge, weirs, and road, as they operate this area as part of Threemile WMA through an agreement with the landowner. Maintenance will be provided throughout the typical lifespan of these items. The bridge is predicted to last 25 years, the road activities are predicted to last 3 years, and the longevity of the weirs depend upon the type of weir chosen (i.e., rock weirs or log weirs may be chosen; these items have different lifespans). An agreement with the landowner will be signed that will express his willingness to allow these items to exist on his property for their predicted lifespans or 20 years, whichever is longer.

- F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?

An incorrectly-sized and –installed culvert caused bed scour and became perched on its downstream end; on its upstream end, sediment accumulated. This resulted in a barrier to fish passage. Replacement of this culvert with a bridge will allow for the channel to resume a more natural state. To address the steep grade at this site, weirs will be installed which will facilitate fish passage and restore habitat connectivity. The poorly-maintained native surface road at this location erodes into the stream during heavy rain events. Excessive erosion of sediment is detrimental to aquatic habitat. Implementation of road BMPs such as recontouring and grading will reduce the unnatural sediment load to the creek.

- G. What public benefits will be realized from this project?

This project involves improvements to a public recreational access road that will reduce washout and make the road safer to drive on. Visitors to Threemile Wildlife Management Area may enjoy viewing and fishing in the restored channel at Wheelbarrow Creek.

DEQ has identified that Threemile Creek, of which Wheelbarrow is a tributary, is characterized by excessive sediment which impairs aquatic life. This project is expected to reduce sediment load to the creek. Concordantly, these improvements to Wheelbarrow Creek will lend benefits to landowners downstream on Threemile Creek.

- H. Will the project interfere with water or property rights of adjacent landowners? (explain):
-

No.

This project occurs on the public property of Montana Fish, Wildlife & Parks and the private property of Paraic Neiburgs. Both landowners have expressed their support for these restoration activities in the attached letters of support.

- I. Will the project result in the development of commercial recreational use on the site? (explain):

The road described in this proposal currently used as a recreational access road in the Threemile Wildlife Area. The public will continue to have access to this site with access regulated by FWP.

- J. Is this project associated with the reclamation of past mining activity?

No.

Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Andrea Price Date: 27 Nov 2019

Sponsor (if applicable): _____

Submittal: **Applications must be signed and received before December 1 and June 1 of each year to be considered for the subsequent funding period.** Late or incomplete applications will be rejected.

Mail to: Montana FWP Fish Management Bureau PO Box 200701 Helena, MT 59620-0701	Email: Michelle McGree mmcgree@mt.gov (electronic submissions must be signed) For files over 10MB, use https://transfer.mt.gov
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Applications may be rejected if this form is modified.

Both tables must be completed or the application will be returned

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTIO N*	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FISHERIES REQUEST	IN-KIND SERVICES**	IN-KIND CASH	TOTAL
Personnel***								
Survey	40	hours	\$44.00	\$ 1,760.00	-	-	660.00	\$ 660.00
Design	55	hours	\$44.00	\$ 2,420.00	-	-	3,080.00	\$ 3,080.00
Engineering	25	hours	\$44.00	\$ 1,100.00	-	-	528.00	\$ 528.00
Permitting	10	hours	\$44.00	\$ 440.00	-	-	88.00	\$ 88.00
Oversight	120	hours	\$44.00	\$ 5,280.00			2,640.00	\$ 2,640.00
MOUs	10	hours	\$44.00	\$ 440.00	-	-	220.00	\$ 220.00
Monitoring	35	hours	\$44.00	\$ 1,540.00	-	-	500.00	\$ 500.00
Education and Outreach	40	hours	\$32.00	\$ 1,280.00	-	-	1,280.00	\$ 1,280.00
Sediment Reduction Estimates	4	hours	\$44.00	\$ 176.00	-	-	132.00	\$ 132.00
Administration	35	hours	\$32.00	\$ 1,120.00	500.00	-	620.00	\$ 1,120.00
Coordination	90	hours	\$44.00	\$ 3,960.00	-	-	3,080.00	\$ 3,080.00
			Sub-Total	\$ 19,516.00	\$ 500.00	\$ -	\$ 12,828.00	\$ 13,328.00
Travel								
Mileage	1000	miles	\$0.58	\$ 580.00	-	580.00	-	\$ 580.00
Per diem	0	days	\$0.00	\$ -	-	-	-	\$ -
			Sub-Total	\$ 580.00	\$ -	\$ 580.00	\$ -	\$ 580.00
Construction Materials****								
Weir materials	5	weir	\$1,540.00	\$ 7,700.00	5,700.00	-	2,000.00	\$ 7,700.00
Bridge materials	1	lump sum	\$11,000.00	\$ 11,000.00	-	1,500.00	9,500.00	\$ 11,000.00
			Sub-Total	\$ 18,700.00	\$ 5,700.00	\$ 1,500.00	\$ 11,500.00	\$ 18,700.00
Equipment and Labor								
Bridge construction	1	bridge	\$14,400.00	\$ 14,400.00	7,445.00	-	6,955.00	\$ 14,400.00
Culvert removal	1	culvert	\$1,000.00	\$ 1,000.00	-	-	1,000.00	\$ 1,000.00
Weirs construction	5	weir	\$1,155.00	\$ 5,775.00	5,775.00	-	-	\$ 5,775.00
Road grading	1.7	miles	\$4,400.00	\$ 7,480.00	-	1,580.00	5,540.00	\$ 7,120.00

Water bar construction	38	water bars	\$172.24	\$ 6,545.12	-	-	6,345.12	\$ 6,345.12
			Sub-Total	\$ 35,200.12	\$ 13,220.00	\$ 1,580.00	\$ 19,840.12	\$ 34,640.12
Mobilization								
Mobilization of contractor (bridge and weir construction, culvert removal)	1	lump sum	\$12,000.00	\$ 12,000.00	-	12,000.00	-	\$ 12,000.00
Road upgrades for site access	6	miles	\$500.00	\$ 3,000.00	-	3,000.00	-	\$ 3,000.00
			Sub-Total	\$ 15,000.00	\$ -	\$ 15,000.00	\$ -	\$ 15,000.00
TOTALS				\$ 88,996.12	\$ 19,420.00	\$ 18,660.00	\$ 44,168.12	\$ 82,248.12

In kind bridge materials: stringers and headwalls donated by FWP. In kind road grading: donation of equipment by FWP. The difference between the total in Column E and the total in Column I reflects contributions from FWP personnel (primarily of Jamie Mongoven, Jason Lindstrom, and Jason Parke), which cannot count as in-kind donations. Hourly rates are based off DEQ's 2014 document, "Estimating the Value of Volunteer Labor."

OTHER REQUIREMENTS:

All of the columns in the budget table and the matching contribution table MUST be completed appropriately or the application will be invalid. Please see the example budget sheet for additional clarification.

*Units = feet, hours, inches, etc. Do not use lump sum unless there is no other way to describe the costs.

**Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used for calculations). Describe here or in text.

Reminder: Government salaries cannot be used as in-kind match

***The Review Panel suggests that design and oversight costs associated with a proposed project not exceed 15% of the total project budget. If design and oversight costs are in excess of 15%, applications must include a minimum of two competitive bids for the cost of undertaking the project.

****The Review Panel recommends a maximum fencing cost of \$1.50 per foot. Additional costs may be the responsibility of the applicant and/or partners.

MATCHING CONTRIBUTIONS (do not include requested funds)

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL	Secured? (Y/N)
DEQ 319 Program	\$ -	\$ 44,168.12	\$ 44,168.12	Y
FWP	\$ 18,080.00	\$ -	\$ 18,080.00	Y
Bitter Root Water Forum	\$ 580.00	\$ -	\$ 580.00	Y
TOTALS	\$ 18,660.00	\$ 44,168.12	\$ 62,828.12	

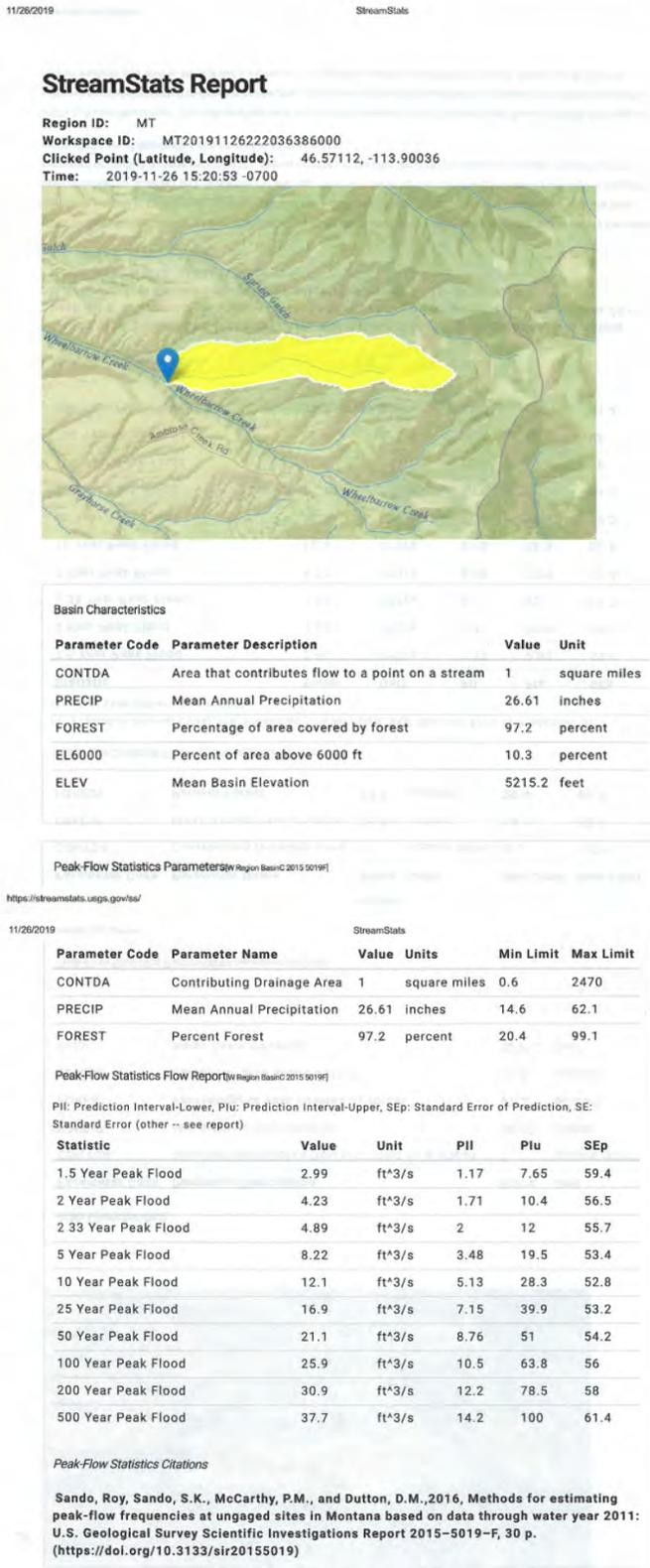
Minimum Design Information

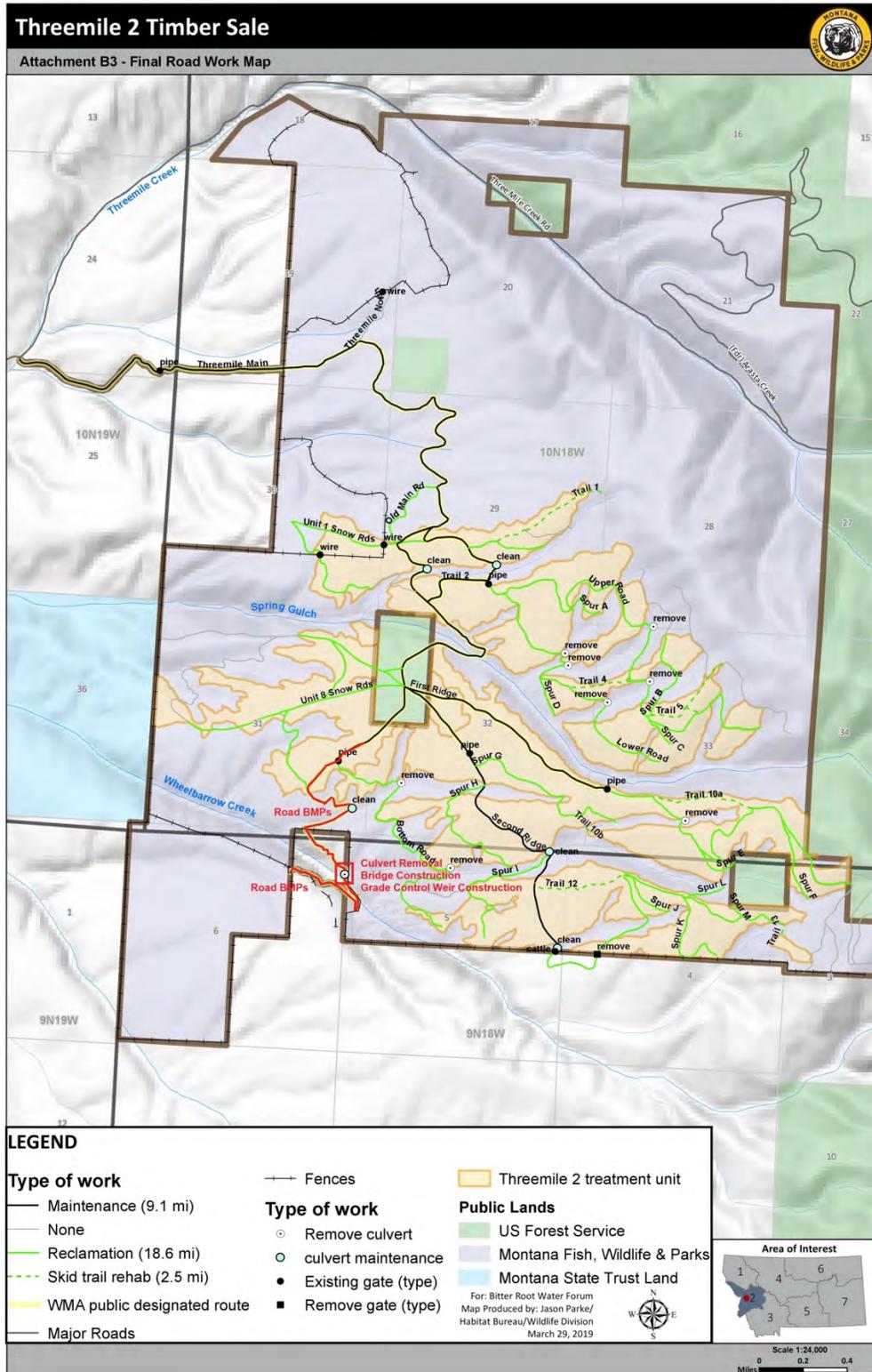
FWP employees Jason Parke, Jamie Mongoven, and Jason Lindstrom have been, and will continue to, assist with the design and implementation of this project. Each of these individuals has visited the site multiple times. Mongoven, PE, will assist with design and engineering of this project in particular. Much of the information in this supplement is credited to him.

1. Site description

The area of Wheelbarrow Creek in question is a perennial Type B or plane-bed reach. The bankfull channel is approximately 8 feet wide and 9 inches deep. A too-short culvert was installed incorrectly and at a grade that created an unnaturally steep channel. This resulted in a loading of sediment upstream of the crossing and a perched culvert end downstream that inhibits the passage of fish. The replacement of the culvert with a bridge will reduce the interference of infrastructure with the channel. Implementation of road BMPs (water bar construction, grading) will reduce the high sediment load the road has been contributing to the stream. Construction of grade control weirs will facilitate passage of Westslope Cutthroat trout through this section. Adjacent riparian areas are protected land due to their location in Threemile Wildlife Management Area and adjacent private land (also operated by FWP through agreement with the landowner). This land is therefore managed with wildlife and wildlife habitat conservation as the foremost concern. Please see FWP's Threemile WMA "Management Plan" (attached) for more details.

2. Discharge calculated for site with USGS Streamstats





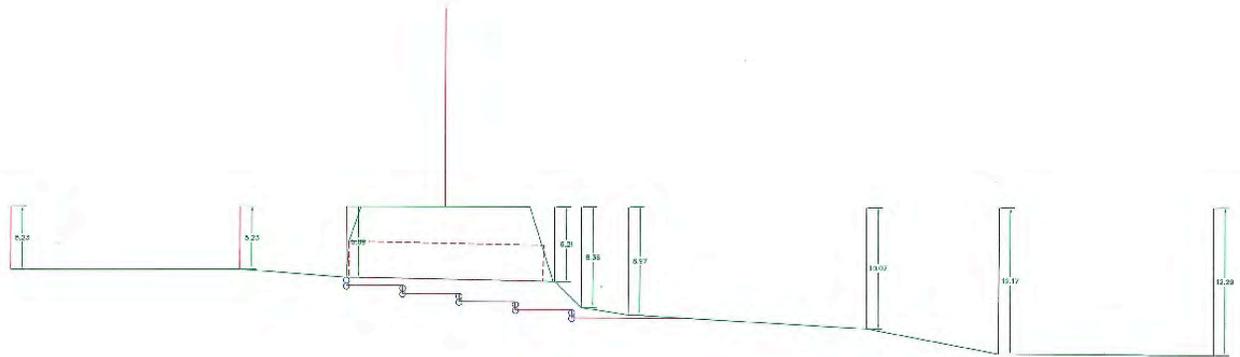
3. Map of area including FWP’s Forest Plan activities. Threemile Fish Passage project activities are in red.



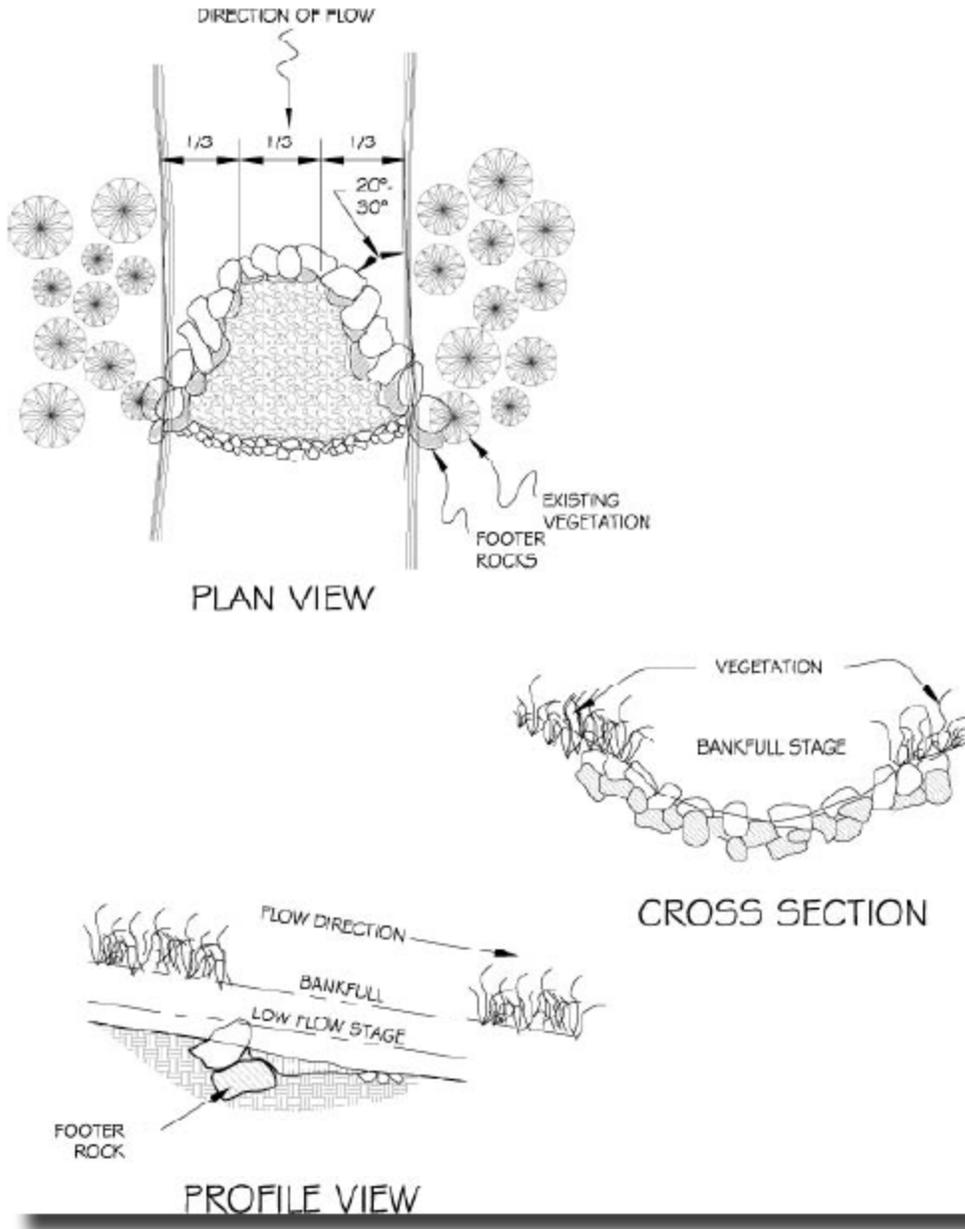
4. Photograph of channel from upstream of the culvert



5. Photograph of native-surface road to be treated with BMPs

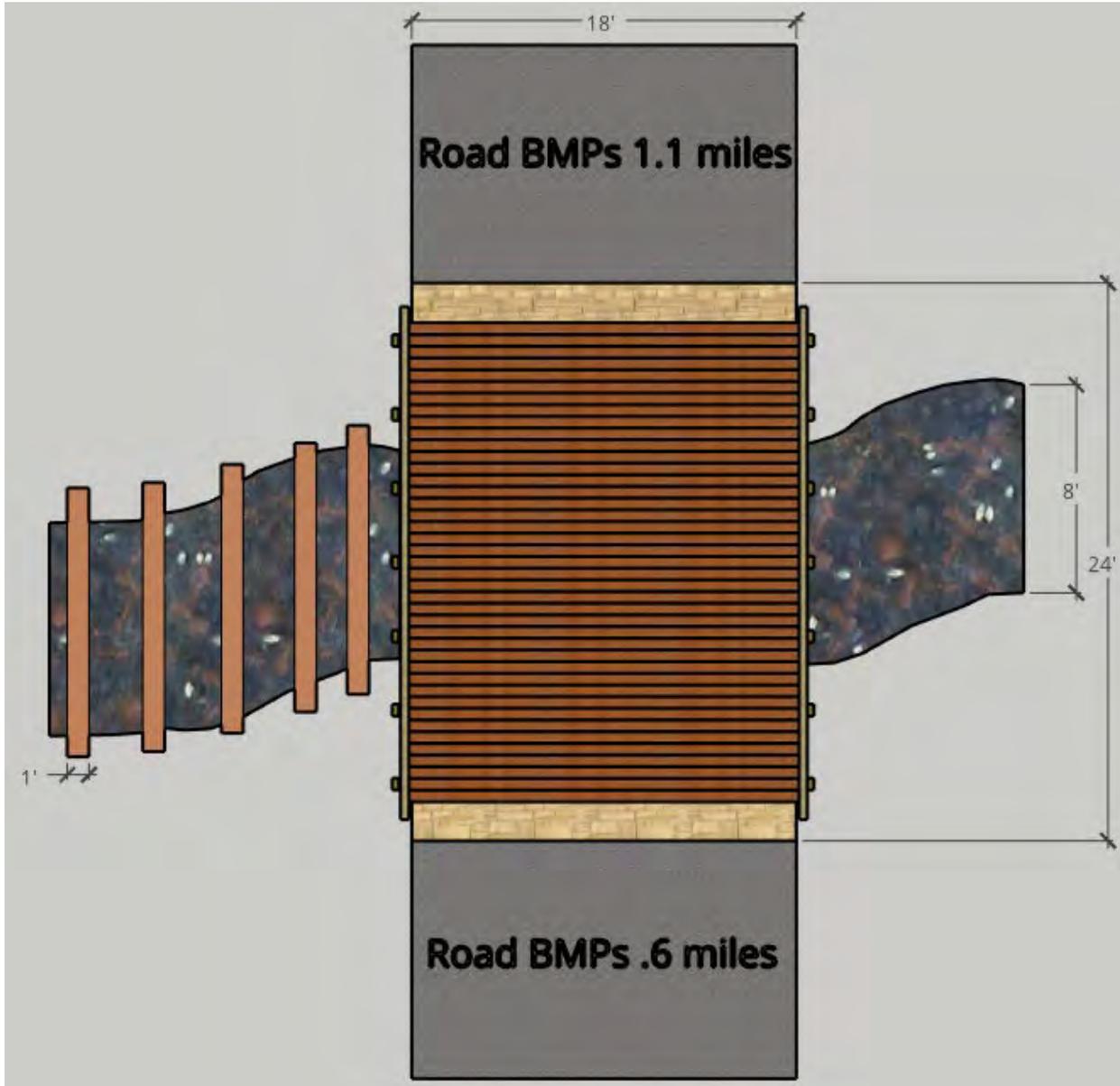


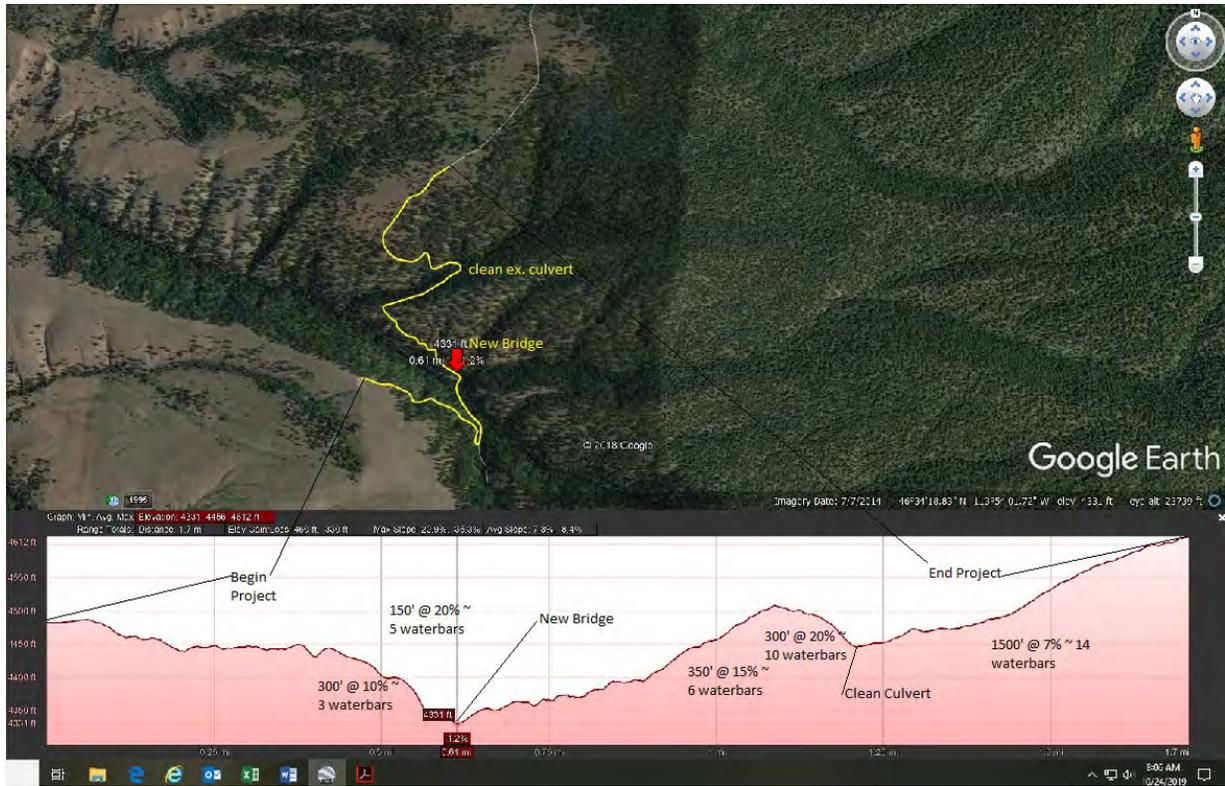
7. Channel grade survey and weir placement locations by Jamie Mongoven, PE



8. Grade control weir typical from "Channel Grade Control Structures" by USFS

9. Plan view drawing of reach with proposed structures. Exact weir placement locations, materials, and quantity are TBD.





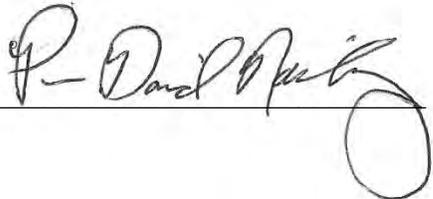
10. Description of road BMP activities by Jamie Mongoven, PE

I, Paraic Neibergs, as the owner of the property in Ravalli County through which Wheelbarrow Creek passes, consent to the restoration of this property that is being considered for funding by the Future Fisheries Improvement Program. I understand the proposed restoration project includes the following components:

- Removal of a perched culvert on Wheelbarrow Creek located at 46.571500, -113.900485;
- Construction of a bridge crossing Wheelbarrow Creek to replace the removed culvert;
- Construction of weirs to facilitate fish passage in Wheelbarrow Creek at the site of the removed culvert;
- Implementation of road BMPs, including, but not limited to, grading and recontouring activities, within one mile of the Wheelbarrow Creek crossing at 46.571500, -113.900485.

I agree to allow members of the Bitter Root Water Forum, FWP, and associated partners, contractors, or their designated staff to inspect the property at any mutually agreeable time for the purposes of this proposal. I understand I shall be notified in advance of all inspection visits. I also understand that the project being proposed may not happen if the application does not meet the needs or qualifications of the Future Fisheries Improvement Program and is subject to availability of funds and ranking priority.

Dated: November 20, 2019

By: 



FWP.MT.GOV

THE **OUTSIDE** IS IN US ALL.

November 26, 2019

Montana Fish, Wildlife & Parks
Future Fisheries Program, Attn: Michelle McGree
PO Box 200701
Helena, MT 59620

RE: Support for the Wheelbarrow Creek Culvert Replacement Project.

I am writing to express my support for the Bitter Root Water Forum's project proposal on Wheelbarrow Creek. Wheelbarrow Creek supports an important conservation population of westslope cutthroat trout. An existing culvert crossing in the middle of the drainage prevents upstream fish movement and fragments the available habitat. The proposed project would eliminate this fish barrier and reconnect over two miles of stream. The culvert removal, bridge installation and implementation of road BMPs associated with this project are necessary actions for the long-term sustainability of westslope cutthroat trout in Wheelbarrow Creek. Fish, Wildlife & Parks is dedicated to seeing this project through and has committed to providing in-kind match in the form of materials, equipment, and expertise.

I have collaborated with the Water Forum on developing and designing this project. Based on my experiences working with them, I can speak to their ability to develop and execute projects responsibly and effectively. This lends confidence that they will carry out the activities under the proposed grant in a manner that aligns closely with the goals of the Future Fisheries program.

Sincerely,

Jason Lindstrom

Jason Lindstrom – Fisheries Biologist
Montana Fish, Wildlife & Parks
1801 N. First St.
Hamilton, MT 59840
Ph# (406) 363-7169

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INTRODUCTION AND LOCATION

The Threemile Wildlife Management Area (WMA) is the result of four land purchases accomplished by the Montana Department of Fish, Wildlife and Parks (DFWP) between 1967 and 1978. The total cost of acquiring the 6,059-acre WMA was \$176,000; 25% was funded by Montana hunting license revenues and 75% by the Pittman-Robertson federal excise tax on arms and ammunition. Under DFWP ownership, the WMA has also been known as the Bitterroot Game Range or WMA (Threemile Segment) to distinguish it from the Calf Creek Segment of the Bitterroot Game Range or WMA located about 20 miles south of Threemile. Threemile WMA is now the official name to minimize confusion.

Threemile WMA lies on the lower, western slope of the Sapphire Mountains, located about 8 air-miles east-southeast of Florence, in the Bitterroot River drainage, Ravalli County (Townships 9 and 10 North, Range 18 West). The primary access is via Threemile Road (County Highway #268, which junctions with the East Side Highway) along Threemile Creek (see map and access-route description in Travel Plan Brochure, Appendix 1). Other notable drainages on the WMA are Spring Gulch and Wheelbarrow Creek. According to longtime local residents, the names of these two creeks, as well as Grayhorse Creek further south, are mislabeled on USGS topographic (dated 1989) and USFS maps; this complicates communication with the public. However, DFWP is using the names on the maps, which constitute the only widely available references for both DFWP and the public. Elevations range from 6,400 feet in the extreme southeast corner of the WMA to 3,958 feet where Spring Gulch leaves the WMA.

The primary purpose of Threemile WMA is to provide winter range for elk and deer. This document is DFWP's revised management plan to fulfill that purpose and address inextricably related issues involving the WMA.

OTHER AGENCIES/INDIVIDUALS WITH OVERLAPPING JURISDICTION

Threemile WMA is under exclusive management control of DFWP, excepting 40 acres under regulated private use (Fig. 1; Pearson agreement described below). Additionally, the U.S. Forest Service owns 80 acres in the W1/2, NW1/4 of section 32 (along Spring Gulch) and 40 acres in the NE1/4, NE1/4 of section 4 (upper Wheelbarrow Creek) within the outer boundaries of the WMA. DFWP does not lease these lands from the Forest Service, and they are not tallied in the 6,059-acres attributed to the WMA. In recent years, the Forest Service has not actively managed these parcels and has allowed DFWP to control public access as part of its overall WMA travel plan. On occasion, the Forest Service has indicated interest in a land exchange that would bring these parcels under DFWP ownership while consolidating Forest Service holdings elsewhere.

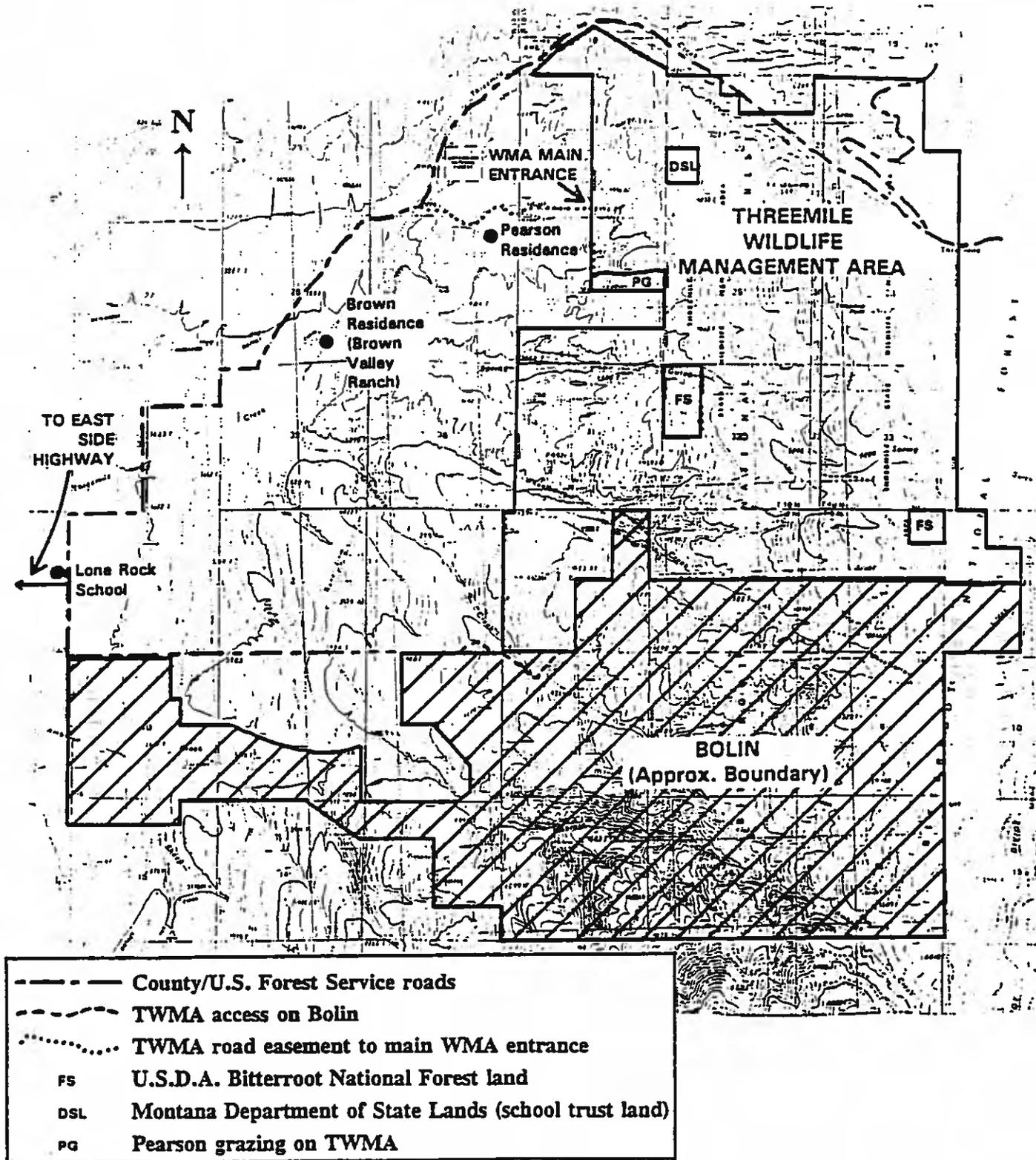


Figure 1. Threemile Wildlife Management Area (TWMA) geography, ownership and access, 1992.

Similarly, the Montana Department of State Lands (DSL) owns 40 acres in the NW1/4, SW1/4 of section 20 (Fig. 1). DSL leases this parcel to William Pearson for the purpose of livestock grazing. Due to inadequate fencing and lack of water for livestock on this isolated parcel, DFWP has permitted Mr. Pearson to graze 30 animal-unit-months on 40 acres of the WMA in the S1/2, NE1/4 of section 30 since 1975. This portion of the WMA that Mr. Pearson uses is adjacent to his property and his DSL lease in the N1/2, SE1/4 of section 30, and is more convenient for him. In return, Mr. Pearson does not graze livestock on his DSL lease in section 20, thereby reducing livestock control problems in the core of the WMA. The fence which excludes Mr. Pearson's cattle from the rest of the WMA (i.e., the fence in section 30) was built, and is maintained, by DFWP.

DFWP has entered into two agreements that permit administrative and public access to the WMA across adjacent private lands (Fig. 1). In 1978, DFWP purchased a right-of-way and easement from Wallace Brown. This easement is 60 feet wide and about 1.5 miles long between the public road at Threemile Creek (SE1/4, SW1/4 of section 24, T 10N, R 19W) and the main WMA entrance (SE1/4, SW1/4 of section 19, T10N, R18W). DFWP is responsible for road construction and maintenance. This agreement is complicated in practice because this DFWP road also provides the only access between William Pearson's home and the county road. Most recently (since 1987), Mr. Pearson has preferred to take responsibility for road maintenance between Threemile Creek and his driveway; this has been acceptable to DFWP so far.

The second access agreement is an informal one whereby Ernie Bolin permits vehicle travel by DFWP and the public across his land in the E1/2, NE1/4 of section 6 along Wheelbarrow Creek (Fig. 1), pursuant to the WMA travel plan. This informal agreement allows vehicle access between section 6 and the rest of the WMA, which would otherwise be impossible. In exchange, DFWP fenced along the road through section 6 NE, rather than strictly along the DFWP property line, thereby including a few acres of the WMA in section 5 within Mr. Bolin's Wheelbarrow Creek pasture, to avoid the need for more gates on this road (Fig. 2). In addition, Mr. Bolin has permitted DFWP administrative access to section 6 from the south, on a road across his property which junctions with the Ambrose Creek Road (Fig. 1).

AREA DESCRIPTION

In 1971, DFWP reported that 35% of the WMA was grassland and the remaining 65% was forested (Appendix 2). Casual observations suggest that these proportions have not changed substantially, but examination of old slides and photographs (on file at DFWP R-2 headquarters, Missoula) indicates that coniferous cover in the forested types, particularly on the western face of Threemile Point, has increased noticeably over the past two

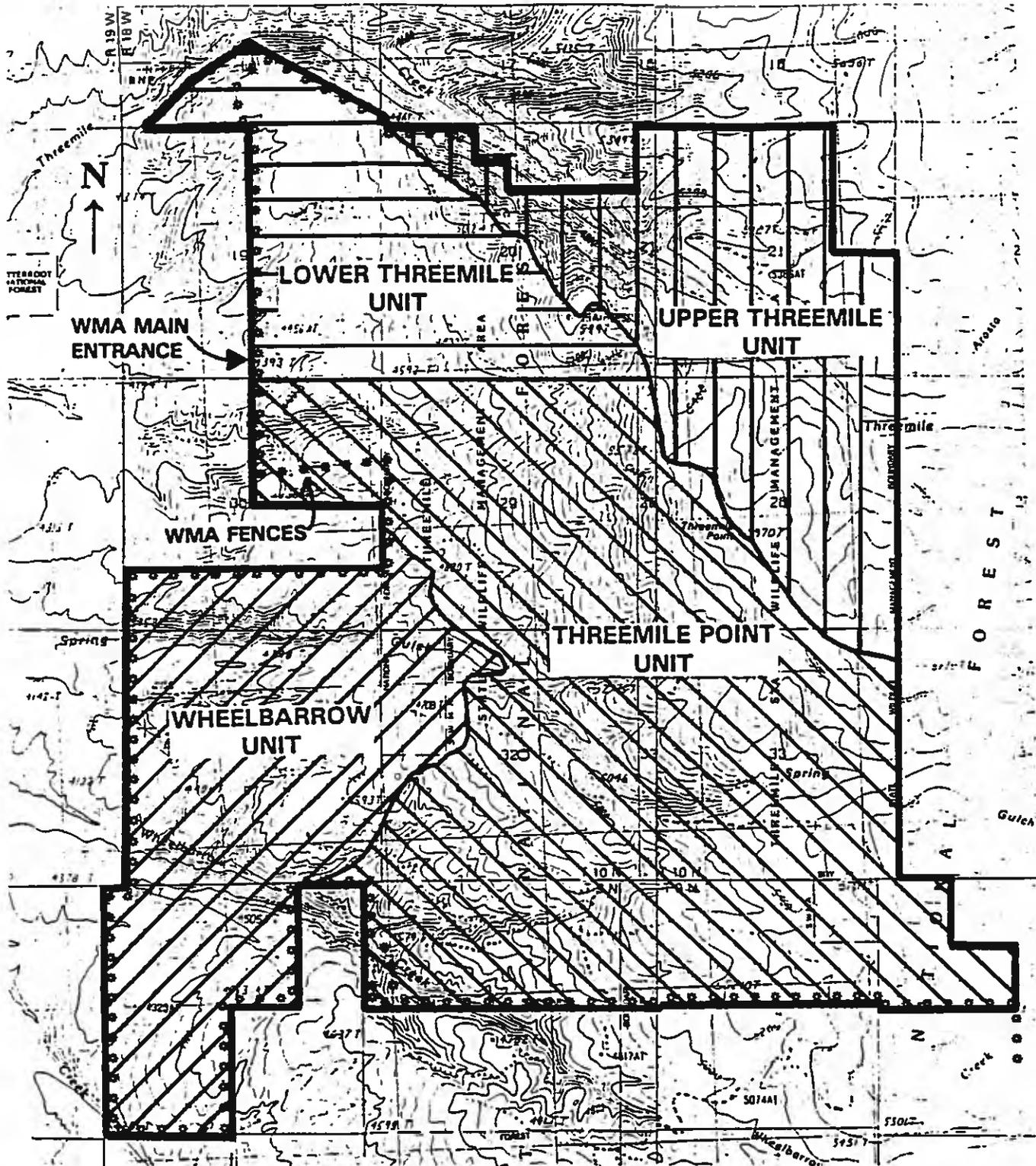


Figure 2. Land management units and fencelines on the Threemile Wildlife Management Area (WMA), March 1992.

decades.

Most Threemile elk are migratory, moving generally east of the WMA to summer along and across the Sapphire Divide in the Welcome Creek and Cinnamon Bear Creek drainages; a few elk move far enough east to cross Rock Creek (Marcum 1975). The known yearlong home range of this herd encompasses about 76 square miles (Stehn 1973). Winter elk numbers on the WMA have remained remarkably constant at 100-150 since the WMA was purchased; however, increasing elk numbers immediately south of the WMA in the Ambrose-Burnt Fork area may soon affect elk numbers on the WMA. Winter bull/cow ratios have declined from about 20 bulls per 100 cows observed in the early 1970s to about 3 bulls per 100 cows in the late 1980s.

The WMA is in Hunting District (HD) 204, which is part of the Rock Creek Elk Management Unit (Mont. Dep. of Fish, Wildl. and Parks 1991). Objectives for this elk management unit include a population increase in HD 204 and a winter ratio of at least 15 bulls per 100 cows. Accordingly, no antlerless elk harvest has been permitted in HD 204 since 1990, and a brow-tined bull season was initiated in 1991.

General impressions recorded by DFWP in 1971 indicated that 4-12 black bears, 5 turkeys, 10-25 white-tailed deer and 25-100 mule deer were found on Threemile WMA (Appendix 2). Current impressions of these wildlife numbers on the WMA are similar.

Land management units were delineated for the purposes of this plan on the basis of topography, wildlife habitat potential and other management considerations (Fig. 2). Unit descriptions follow.

Upper Threemile Unit

Size and Physical Features: This unit comprises roughly 1,280 acres in the northeastern corner of the WMA, described by the main Threemile Creek canyon and upper drainage located within the WMA boundary (Fig. 2). About half of this unit is composed of northeasterly facing, steep forested slopes of little value to wintering elk and deer. The remainder of the unit is composed of southwesterly facing, steep slopes along the canyon, with forested secondary drainages of various aspects beyond. The entirety of the unit is above 4,600 feet in elevation in a zone of relatively heavy snow accumulation.

Elk and Deer Habitat Potential: Although certain microsites occur that provide habitats characteristic of elk and mule deer winter ranges, these few and small favorable sites are not spatially arranged to benefit elk and deer populations (as opposed to individuals). Therefore, this unit is surplus to the primary purpose of the WMA. However, the forested upper slopes

around Threemile Point provide important elk hiding cover, if not security, for the elk population hunted on the WMA and the surrounding Bitterroot National Forest.

Additional Habitat Values: Beyond considerations of elk and deer winter range, the riparian zone of Threemile Creek is the most valuable wildlife habitat in this unit. However, this zone is very narrow due to topography and is fragmented by the Threemile Creek Road (Forest Route #640) which accesses National Forest lands on Cleveland Mountain and Cooney Ridge. Additionally, the upper slopes around Threemile Point provide limited blue grouse habitat.

Recreational Values: This unit is of low value to most recreationists due to steep slopes and low habitat diversity. However, Forest Routes #640 and #1334 provide important motorized access through this unit to the National Forest.

Past Management: To date, the DFWP management strategy has been to minimize maintenance and allow natural processes to occur.

Lower Threemile Unit

Size and Physical Features: This unit comprises roughly 700 acres of land in the northwestern corner of the WMA, characterized by the broad, southwesterly facing grassland slopes visible from the main WMA entrance (Fig. 2). Generally, slopes above 4,840 feet in elevation are vegetated with native bluebunch wheatgrass/Idaho fescue communities. Lands below this elevation were cultivated and planted to wheat as late as the 1940s. These historically cultivated lands (400 acres) currently support a grassland community dominated by junegrass, several bluegrasses and non-native wheatgrasses. In the absence of a weed control program prior to 1989, the grassland community on the historically cultivated lands was dominated by spotted knapweed. Conversely, the native rangelands in this unit have been remarkably resistant to knapweed infestation, although knapweed appears to be moving slowly into these communities as well. DFWP began an experimental herbicide-program for knapweed control on the historically cultivated lands in 1989 and witnessed an impressively positive grass response on about 360 treated acres; early indications suggest this positive response may last for several years after degradation of the herbicide (Lacey and McKone 1992).

Elk and Deer Habitat Potential: Historically, 30-or-fewer elk used this unit as winter range; however, since the herbicide application in 1989, more than 100 elk (nearly the entire WMA wintering population) have been observed in this unit each winter. As noted in the past, elk tend to leave this unit, moving south and southwest, during periods of relatively heavy snow accumulation. Under intensive vegetation management, this

unit could provide significant fall-winter-spring forage for the WMA elk herd.

Additional Habitat Values: The native rangelands provide a diverse grass-forb community for a variety of wildlife, but comparable community diversity does not exist currently, and may not be practical to develop, in the cultivated community. However, a high frequency of ponderosa pine seedlings on some historically cultivated sites indicates that these sites have the potential for natural reforestation, if desired. A few large snags are present in some small draws. There are no permanent water or riparian areas in the unit.

Recreational Values: This unit is of moderate value as a hunting area for elk, mule deer and white-tailed deer. Additionally, the highest elevations provide unobstructed views of the Bitterroot Mountains and valley. To date, this unit has provided nonmotorized access for cross-country skiing, horseback riding and hiking during the winter. At least one group of school children uses the unit for a field trip each spring.

Past Management: Past DFWP management concentrated on fencing livestock out of the unit, controlling vehicular travel and, recently, controlling knapweed.

Threemile Point Unit

Size and Physical Features: This unit comprises roughly 2,820 acres and generally occupies the central and southeastern portions of the WMA (Fig. 2). This unit is characterized by the forested, southwesterly facing slopes of Threemile Point and is dissected by upper Spring Gulch and its tributaries, and by the tributaries of upper Wheelbarrow Creek. When DFWP purchased this unit in 1968, the previous owner retained a five-year logging option, with no environmental protection measures specified. Extensive logging occurred primarily in 1972 and 1973 (Beall 1974), leaving a network of eroding roads and skid-trails. Spotted knapweed is a problem on these disturbed sites.

Elk and Deer Habitat Potential: The WMA elk herd typically uses this unit for daytime bedding sites during winter, due to the unit's proximity to adjacent, grassland feeding areas. The forest canopy provides thermal cover for elk and mule deer during winter and spring and contributes to habitat security for both species during hunting season. Conifer twigs and understory vegetation in this unit provide supplemental winter forage.

Additional Habitat Values: Spring Gulch, and the smaller tributaries to a lesser extent, support riparian vegetation that adds substantial habitat diversity in localized areas. Otherwise, the dry forests provide habitat for generalist wildlife species.

Recreational Values: This is an important unit for hunters in pursuit of elk and mule deer. Motorcyclists utilize the open (and closed) logging roads in the summer, and others hike, drive, ride horses and sight-in rifles. Nonmotorized winter recreation in this unit is not popular due to the long distances from the WMA main entrance.

Past Management: Past management focused on fencing livestock out of the unit, removing trespass livestock that entered from the unfenced eastern boundary, and controlling vehicular travel.

Wheelbarrow Unit

Size and Physical Features: This unit comprises roughly 1,260 acres in the southwestern portion of the WMA (Fig. 2). This unit is characterized by several grassy ridges separating lower Spring, Wheelbarrow and Grayhorse creeks. These grasslands occur primarily on southerly and westerly exposures between 4,200 and 4,600 feet in elevation. Native rangelands characterized by bluebunch wheatgrass, Idaho fescue and Stipa spp. dominate the nonforested habitats in sections 30 and 31; rough fescue is present, but scarce, on relatively cool, moist sites. An historically cultivated grassland characterized by crested wheatgrass dominates section 6. Historically cultivated grasslands in sections 31 SE and 32 retain scattered native bunchgrasses on rocky sites that were never effectively plowed. Open ponderosa pine stands occur in the drainages, as well as shrub communities composed of bitterbrush, serviceberry, chokecherry and others. Virtually all habitats in this unit--having been affected by past logging, roading, cultivation, and/or livestock grazing (including current livestock trespass)--are invaded by spotted knapweed, and to-date there have been no significant efforts at weed control in this unit.

Elk and Deer Habitat Potential: This unit is the traditional winter feeding area for the WMA elk herd and also provides winter habitat for mule deer. There is considerable potential to improve winter and spring forage for both species by controlling knapweed.

Additional Habitat Values: The riparian areas along Spring, Wheelbarrow and Grayhorse creeks add diversity. There is potential to improve the native rangeland communities for a variety of wildlife if knapweed can be controlled in the northern portion of the unit. Much habitat diversity in section 6 has been lost to previous cultivation.

Recreational Values: This unit is popular with elk and deer hunters, although the habitat lacks security and many animals tend to avoid the area during hunting season. Similar to the Threemile Point Unit, this unit is utilized for a variety of recreational activities when motorized access is permitted, but

seldom is entered during winter when motorized vehicles are prohibited.

Past Management: Past management focused on fencing livestock out of the unit, removing trespass livestock, and controlling vehicular travel.

PURPOSE AND NEED FOR THE PROPOSED ACTION

WMA Purpose and Need

Suitable elk winter range in the Bitterroot Valley north of Hamilton is relatively scarce and threatened by development and other competing land uses. (U.S. Census data shows that the human population in Ravalli County increased by 11.2% between 1980 and 1990, with the highest growth rate occurring outside incorporated towns, while the population increased only 1.6% statewide.) Threemile WMA was purchased, and has since been managed by DFWP, to provide winter range for elk and deer. Secondarily, the WMA provides habitat for other indigenous wildlife species and provides an area for research and seasonal public recreation.

Need For Revised Management Plan

This revised plan is an update of the Management Plan for the Bitterroot Game Range prepared by Claude Smith (the first Bitterroot Game Range manager) and dated December 6, 1971 (Appendix 2). This revision provides more detail made necessary by recently intensified land management activities and associated issues. Following is a discussion of the recently recognized problems that necessitate a management plan revision. (Although some preferred management actions are implied in the following discussion, the intent is to provide background information and rationale only; please refer also to the PROPOSED ACTION section of this document for a description of DFWP's management strategy.)

The following information is italicized to highlight the fact that it was added in response to public requests for more documentation and rationale regarding DFWP's proposed management actions.

Elk Population Problem: Winter elk numbers on Threemile WMA have remained remarkably constant at 100-150 since the WMA was purchased, despite conservative legal harvests of antlerless elk. This contrasts with DFWP's experience elsewhere in Montana, where the development of WMAs on elk winter ranges usually contributed to substantially increased elk populations (e.g., Blackfoot-Clearwater, Wall Creek, and Blackleaf WMAs).

DFWP desires a management program on Threemile WMA winter range that complements other remedial actions currently underway to allow an increase in the elk population. Beginning in 1990, DFWP eliminated the legal harvest of antlerless elk in HD 204, which includes the WMA. In 1991, DFWP restricted the legal harvest of antlered bulls by employing a brow-tined bull regulation. In 1990, DFWP cooperated with the Lolo and Bitterroot National Forests to conduct a "Cumulative Effects Analysis" on elk security along the Sapphire Divide (attached with Lolo National Forest comments in Appendix 3), presenting logging and road management alternatives on elk summer-fall range to address problems of low habitat security and high elk mortality (legal and suspected illegal). In conjunction with these recent initiatives, and in anticipation of increased elk numbers, DFWP desires to maximize the winter carrying capacity for elk on Threemile WMA, and to improve habitats and landowner tolerances for elk on adjacent private lands.

Elk-Caused Damage Problem: At current elk population levels, adjacent private lands (particularly those of Ernie Bolin) support some or most of the Threemile herd from time to time during fall, winter and spring. Mr. Bolin has reported occasional elk-caused damage to fencelines, haystacks and pastures (particularly new seedings) for many years. DFWP is required by law to respond to landowner complaints of game-caused damage, and must help reduce/minimize damage as appropriate using hunting, herding, fencing, cooperative agreements and other management tools. Direct compensation to landowners for game-caused damage is not authorized by the Montana legislature and is not funded.

Considering the possibility of increased elk numbers at Threemile, it is DFWP's responsibility to cooperate with Mr. Bolin and other landowners who become affected, in order to minimize elk-caused damage on private lands. Accordingly, DFWP desires to improve the quantity and quality of winter/spring elk forage on the WMA to attract elk and minimize their use of private lands. Because elk will continue to use private lands to some extent, DFWP desires to improve the tolerance of private landowners for elk--and hunters--on their property through mutually beneficial management agreements; such agreements also would strive to conserve wildlife habitat on private lands.

Livestock Trespass Problem: Sporadic livestock-trespass occurs annually, usually increasing as summer progresses; as a result, some microsites on the WMA are noticeably affected along the western boundary, and temporary evidence of livestock use is more widespread. Cattle enter the WMA through open gates, across broken fence-wires, and around incomplete fencelines. DFWP does not have personnel available to do more than repair fences once each spring and make occasional spot-checks in the summer and fall. Legislative appropriations for additional personnel are severely limited statewide.

DFWP desires to eliminate chronic livestock-trespass problems. Effective, long-term solutions should be planned that require minimal annual maintenance by DFWP personnel, and should provide incentives for increased cooperation from adjacent ranchers.

Knapweed Problem: Before DFWP began experimental herbicide applications in 1989, spotted knapweed dominated about 800 acres of historically cultivated grasslands on the WMA, forming knapweed "monocultures" averaging 196 knapweed plants/square-meter and 1,103 pounds of knapweed/acre (Bedunah and Carpenter 1989). The remaining 800 nonforested-acres are native rangelands where knapweed is present at various, lower densities. Researchers previously reported evidence of knapweed expanding within Glacier National Park's "undisturbed" native bunchgrass communities, with an associated decline in plant species richness (Tyser and Key 1988); preliminary results of DFWP monitoring within "undisturbed" native rangelands on the Threemile WMA suggest the same trend (Anon. 1991).

Elk concentrate their feeding activities on grass-dominated (herbicide-treated) sites at Threemile during winter and avoid feeding in knapweed-dominated sites (Thompson, In Progress). Further, researchers from Montana State University demonstrated elsewhere that knapweed-dominated sites are more susceptible to erosion than similar bunchgrass-dominated sites (Lacey et al. 1989). DFWP's statewide weed-control policy, in compliance with the 1979 Montana Weed Control Law, is to prevent, to the extent feasible, the reproduction and distribution of agriculturally undesirable plant species on/from department (DFWP) lands to adjacent private lands.

DFWP documented favorable plant and animal responses to recent experimental herbicide applications on Threemile WMA (Carpenter 1986; Bedunah and Carpenter 1989; Thompson, In Progress); therefore, DFWP desires to similarly treat most nonforested, knapweed-dominated lands on the WMA. Experimental applications of picloram (1 pint/acre) by helicopter were made in 1989 and 1990, totalling about 360 acres of historically cultivated land on the WMA. Following treatment, DFWP photodocumented an increase in overall vegetation production that visually appeared to exceed the 375% increase previously measured on similar experimental microplots near the WMA entrance (Carpenter 1986). Elk also displayed a favorable response to the treatment (Thompson, In Progress). DFWP strives to apply as little herbicide as possible while achieving the desired effect during the expected 10-year life of this plan; therefore, prevention of weed spread, alternative control methods, and criteria for acceptable knapweed densities must be considered.

Winter-Spring Wildlife Disturbance Problem: DFWP personnel have frequently encountered hikers, cross-country skiers, horseback-riders (all of the above with and without dogs) and turkey hunters on the WMA during the winter-spring "closure" period

(Dec. 1-May 14, closed to motorized vehicles). There is no evidence that large numbers of people use the WMA at any one time, but the consistent winter-spring use by relatively few people has been a cause for concern since it was first noted in 1989. Winter and spring are critical seasons for elk and deer; their condition, and the birth weights and ultimate survival of their offspring, are largely determined by their access to preferred habitats and the rate at which they are forced to burn their fat reserves. Recreational traffic during winter--even though nonmotorized--could displace elk from preferred, sun-exposed bedding sites during cold, calm weather, and could force elk into an energy-consuming daily migration between forested, daytime bedding sites (i.e., away from people) and nonforested, nighttime feeding sites (where people usually access the WMA during daylight hours). Recreational traffic during spring could drive elk off the public WMA and on to private lands.

DFWP desires to provide for the needs of wintering wildlife as the first priority, consistent with the purpose of the WMA. Threemile WMA currently is one of a few exceptions among DFWP-owned winter ranges in Montana where the public is permitted during winter. Due to the growing population in the Bitterroot Valley, human recreation pressures at Threemile are expected to increase. DFWP personnel in the Missoula office respond to increasing information requests from the public regarding winter recreation options at Threemile, and it is apparent that many people are unaware they currently may enter the WMA during winter. DFWP anticipates that its publication and general distribution of the attached travel plan brochure (Appendix 1) will generate more interest in winter recreation at Threemile, and regulations must be designed accordingly.

Off-Road Vehicle Problem: Motorized traffic off established open-roads is a violation of WMA rules; however, members of the public report that violations are common each summer before DFWP's annual monitoring/enforcement effort during hunting season. DFWP lacks personnel and time to significantly increase summer enforcement efforts at Threemile. Any lasting damage by off-road vehicles to soil and vegetation is not obvious at this time; in fact, many closed (to motorized travel) roads are revegetating naturally. Nevertheless, vehicles off-roads may contribute to soil erosion and weed spread, which will be of additional concern, for instance, when weed-control programs are initiated. Further, vehicles off-roads are a source of needless disturbance to wildlife and other recreationists.

DFWP desires to reduce illegal motorized traffic occurring off open roads and prevent the WMA from becoming an off-road-vehicle destination. Regulations should be designed that deal with the problem as specifically as possible (i.e., do not close the WMA to everyone because of a few violators), while increasing the value of public violation reports to DFWP enforcement efforts (i.e., eliminate "loopholes" in WMA rules).

Vegetation Quality Problem: The production of 1,378 pounds/acre of grass on previously knapweed-dominated sites on Threemile WMA following herbicide application (Bedunah and Carpenter 1989) leads to the problem of managing this enhanced vegetation crop. On historically cultivated sites, native bunchgrasses have been replaced by bluegrasses, junegrass and western wheatgrass which are variably palatable to elk during winter when the plants are tall and "rank." Since these planted grasses are tolerant to annual cropping--generally, more so than bunchgrasses--the opportunity exists to mow, burn or graze portions of these non-native grasslands to provide more succulent, second-growth vegetation for elk to feed upon in winter. Additionally, although Threemile elk have been observed to use bluegrasses and junegrass heavily during winter, even when the plants are in a "rank" condition, a several-year accumulation of unconsumed dead plant material on the ground surface may form a dense mat that reduces future elk-forage production.

DFWP desires to maintain historically cultivated grasslands in a productive condition for the primary purpose of providing high-quality winter-spring forage for elk. Vegetation management techniques should be nondestructive (in contrast to plowing) and cost-effective (in contrast to fertilizing). Treatments such as burning and mowing should be confined to relatively small acreages each year to provide forage-quality diversity, and should be rotated to avoid over-impacting individual sites.

Conifer Encroachment Problem: In the absence of natural fire and cultivation, ponderosa pine seedlings are increasing on certain sites currently dominated by grasses. As the encroaching forest canopy closes in the future, grass production will decrease, resulting in a loss of elk winter-forage. In recent years, DFWP has solicited the help of school classes and sportspersons to cut and remove young trees and seedlings from historically cultivated grasslands, thereby maintaining these sites for maximum elk forage production.

DFWP desires to maintain the grassland character of all native rangelands. Further, DFWP desires to maximize forage production on key elk-foraging sites in historically cultivated grasslands; however, this does not preclude the development of an open-canopy, ponderosa pine savannah that adds habitat diversity. It may be desirable to allow conifer succession on less-favorable feeding sites within historically cultivated grasslands where cover is limiting. These situations should be addressed on a case-by-case basis.

Forest Management Problem: Nearly 20 years after logging last occurred on Threemile WMA, forests are at varying stages of recovery and "maturity." Commercially valuable timber is present on the WMA. DFWP desires to develop objectives regarding the type of forest structure(s) that best meet WMA goals for wildlife and to subsequently develop appropriate management strategies

that might include prescribed timber harvest. To clarify, wildlife management objectives, rather than the commercial value of the timber, should be the primary consideration in evaluating any future timber harvest options on the WMA.

Road Management Problem: In 1987, DFWP initiated a program to manage motorized-vehicle traffic on the WMA's 35-mile (approx.) road system. DFWP's management proposal drew substantial public attention, resulting in extensive data collection and public involvement (Thompson et al. 1991). In 1988, DFWP implemented the current travel plan, closing about 20 road-miles to motorized traffic yearlong and an additional 4 road-miles to motorized traffic during the upland-bird and big-game hunting seasons. About 4 open-road miles in the northeast corner of the WMA are "through roads" maintained by the Bitterroot National Forest and have not been considered for closure. DFWP's annual surveys of hunters at Threemile have demonstrated strong public support for this travel plan (Thompson et al. 1991), and DFWP also has been satisfied from a resource management standpoint. However, considerable effort is required from DFWP to replace vandalized signs in a timely manner and maintain high visibility on-site to the public during hunting season. DFWP believes that compliance with the travel plan, and the plan's current level of effectiveness, would decline significantly without this continued commitment from DFWP.

DFWP desires to maintain the effectiveness of the current travel plan and public support for it. Time and personnel should be budgeted accordingly, and DFWP should continue to take advantage of the opportunity to interview WMA users in conjunction with public contacts made for enforcement purposes.

Public Appreciation Problem: Increasing numbers of people are moving to the Bitterroot Valley from elsewhere in Montana, other states and other countries. Ludwick (1992) reported that Ravalli County had the state's smallest percentage of native Montanans in 1990--only 42% of the residents of Ravalli County were born in Montana--and 48,000 more vehicles were registered in Ravalli, Missoula, Lake and Flathead counties in 1990 than in 1980. Many of these people, as well as some longer-time residents, are unaware of the WMA and its purpose, history, products and value. Many do not appreciate the interrelationship of wildlife populations, habitat quality, land-use management, recreation management, economics and social values. Although the WMA was purchased and is maintained with hunter dollars, DFWP manages the property and carries out its mission for the benefit of the general public as outlined by legislative statute.

DFWP desires to increase general public appreciation for the Threemile WMA and DFWP's statewide habitat management program. This increased awareness is important to maintain support for successful wildlife management programs and to obtain informed public input in order to improve DFWP's efforts at Threemile and

elsewhere. Further, DFWP's land management practices for the benefit of wildlife at Threemile may serve as an example for private landowners who might wish to benefit wildlife on their properties; however, people first must be aware of this example to benefit from it.

Inventory and Monitoring Problem: As DFWP's management practices intensify, the need for inventory and monitoring data increases. Past monitoring at Threemile consisted of low-intensity efforts designed to detect gross changes in elk populations and key plant species on selected sites; this level of monitoring was appropriate for a low-intensity management program where habitat changes would normally occur very slowly (barring wildfire or unusual events). As DFWP invests in weed control, recreation management, livestock management, possible timber harvest, and other more intensive management actions, habitat changes may be expected--and desired--to occur more rapidly, requiring more detailed and sensitive monitoring information to direct and redirect management effectively.

DFWP desires to intensify its monitoring commensurate with the information needed to evaluate and modify its management practices. Travel plan monitoring since 1987, and the experimental approach to weed control since 1989, are project-specific examples of an appropriately expanding monitoring program. In addition, basic inventories of wildlife species diversity on the WMA (Appendix 2) are incomplete and should be added to DFWP's monitoring program so that all wildlife may be more effectively considered in management decisions. The emergence of computerized geographic informational systems (GIS) as increasingly practical tools available to DFWP will improve the storage and analysis of accumulating treatment and monitoring data.

Threemile Creek Siltation Problem: Recently, the Hamilton office of the Soil Conservation Service (SCS) has documented a serious sedimentation problem along the entirety of Threemile Creek. SCS has been working with private and public landowners to address this problem by fencing livestock out of key streambanks, improving road drainage, and other appropriate actions. SCS has identified drainage from DFWP's main WMA access road across the Wallace Brown ranch as a problem area.

DFWP desires to correct problems under its management control that contribute to the sedimentation of Threemile Creek. This issue also should serve to increase DFWP alertness to management situations elsewhere on the WMA that might affect other streams and stream reaches.

MEPA Process and Public Involvement

This revised management plan is intended to complete DFWP's

current planning process for the Threemile WMA in accordance with the Montana Environmental Policy Act (MEPA). A "draft management plan and environmental assessment [EA]" was mailed to 22 organizations and/or individuals on April 10, 1992 (see PUBLIC COMMENT section). Additionally, legal notices were placed in the Bitterroot Star (April 29), Ravalli Republic (April 29 and May 1) and Missoulian (April 30 and May 3) newspapers (Appendix 4); as a result, copies of the draft were mailed to two more individuals. The initial public comment period ended on May 11, 1992, but all comments received through June 8 were incorporated in this revision (including input from meetings with representatives of Friends of the Bitterroot, Inc. on May 21 and 28, and correspondence from the "Friends" reviewed on June 6). DFWP's record of public comments is provided in Appendix 3.

The draft management plan and EA succeeded in stimulating helpful public input. *Text in this revised plan is italicized where the information presented in the draft was substantially revised due to public comment and further consideration by DFWP. Revisions include more detailed technical information, expanded alternatives, and adjustments in the proposed action.*

This revised management plan and EA, with public input on the draft plan and EA incorporated, is intended to serve as a Record of Decision. This document is the working management plan for the Threemile WMA. (Unless needed and boldly labelled for record-keeping purposes, the April 10, 1992 draft should be discarded to avoid confusion in the future.) The anticipated life of this plan is 10 years, but DFWP will revise or amend the plan earlier (if needed) in response to new, significant considerations brought to light by the public, scientific community, DFWP's on-site monitoring, legislation or similar events.

GOALS

Restore and sustain the natural productivity of the ponderosa pine/bunchgrass/riparian ecotone extending from Threemile Creek to Ambrose Creek, including Threemile WMA and adjacent ownerships, to retain a wide variety of potential management alternatives for future generations. For the expected 10-year life of this plan, as in the past under DFWP ownership, provide high-quality winter range for elk and mule deer, as well as compatible public recreational opportunities.

OBJECTIVES

(Progress toward all objectives is expected during this 10-year period; therefore objectives are not prioritized)

1. Reduce soil erosion and stream siltation.

2. Enhance natural soil development processes.
3. Control noxious weeds in all nonforested areas and along open roads, and prevent infestations in weed-free areas.
4. Maintain and enhance native plant communities, emphasizing bunchgrass, ponderosa pine, and riparian communities.
5. Create a partnership for elk management and land stewardship with affected, adjacent private landowners.
6. Increase the Threemile WMA elk herd from 130 to 250, and assess the larger herd's relationship to the economic and environmental carrying capacities of the winter range.
7. Inventory the WMA mule deer herd and maintain its numbers commensurate with future assessments of winter range carrying-capacity.
8. Conduct a baseline inventory of all wildlife species on the Threemile WMA and develop habitat restoration programs as appropriate to provide for the needs of declining endemic species.
9. Manage public access to provide a diversity of wildlife-related recreational opportunities and prevent serious conflicts with other objectives.
10. Increase public awareness and appreciation of the Threemile WMA.

PROPOSED ACTION

DFWP proposes to conduct specific management activities during the next 10-year period to achieve the above objectives. These management activities may be organized into the following categories: livestock management, weed control, other vegetation treatments, travel plan, inventory and monitoring, and public involvement.

Livestock Management

Controlling privately owned livestock would continue to be one of the primary management efforts to achieve objectives related to soil stabilization, weed control, vegetation restoration, cooperative elk management, and public appreciation (Objectives 1-6, 10).

Boundary Fencing: DFWP will continue to annually maintain about 12 miles of boundary fencing along the northern, western and southern WMA boundaries to exclude trespass livestock (Fig. 2).

Up to 9 miles of the oldest, most troublesome wire fencing will be replaced with new jack-leg/rail (i.e., no wire) fencing (by June 30, 1993). Highest priority for replacement is the 60-year-old "sheep wire" fence around the main WMA entrance. Wire fencing would be retained on the steepest slopes and in the most remote locations due to the practical limitations of constructing and maintaining jack-leg/rail fences in these situations. Properly constructed, a jack-leg/rail fence should provide improved, lower-maintenance livestock control for at least 20 years and should substantially reduce trespass livestock problems. It also should reduce wildlife entanglement which occurs with wire fences.

The eastern WMA boundary remains unfenced. To eliminate the need for fencing this boundary, which would be expensive and would place a new obstruction in the path of migrating elk, DFWP and the Bitterroot National Forest (BNF) entered into a cooperative agreement on August 5, 1988. This agreement resulted in 200 yards of fence being built along the western boundary of BNF lands in the SE 1/4 of section 3 (T9N, R18W), using DFWP materials (enough provided for 1/2-mile of fence) and BNF labor (Fig. 2). This fence ties into the southeastern corner of the WMA boundary fence, was intended to be 1/2-mile long, and should tie into a proposed BNF fence around section 10 which also has not been built. Maintenance of the 1/2-mile fence in section 3 was to be the responsibility of BNF. Changes in staff at the Stevensville Ranger District have disrupted continuity in this program, but BNF recently has indicated a renewed interest in pursuing this project (Appendix 3). DFWP plans to continue promoting this cooperative effort as the best approach to preventing livestock from crossing the WMA eastern boundary.

Pasture Fencing: No livestock are currently permitted on the WMA, except for the Pearson grazing permit in section 30 (Fig. 1). If livestock were permitted in the future, they would be fenced into specific pastures using jack-leg/rail, 3-strand barbed wire, or other appropriate fencing. Lands most appropriate for prescribed livestock grazing are the historically cultivated lands in the Wheelbarrow and Lower Threemile Units, due to their gentle slopes and the resistance of the planted vegetation to grazing damage; however, problems of insufficient water for livestock would have to be overcome. Under careful, conservative management, there may be value in grazing livestock in section 31 of the Wheelbarrow Unit as well; DFWP does not foresee exercising this option in section 31 at this time, but does not rule out future consideration (Fig. 2). Refer to the following subsection (Cooperative Grazing Leases) for guidelines and rationale to direct prescribed livestock grazing on the WMA.

Cooperative Grazing Leases: No livestock are currently permitted on the WMA, except for the Pearson grazing permit in section 30 (Fig. 1). However, in an effort to achieve DFWP's soil stabilization, weed control, vegetation restoration, cooperative

elk management, and public appreciation objectives (Objectives 1-6, 10) on an ecosystem scale--that is, on an area larger than the WMA itself--it would be beneficial to incorporate appropriate WMA lands into the livestock grazing systems of adjacent landowners in key elk habitats.

For example, DFWP has begun preliminary discussions with adjacent rancher Ernie Bolin regarding the possibility of a future, cooperative cattle-grazing lease involving historically cultivated WMA lands in section 6 and certain of his private lands (Fig. 1). As described previously in the PURPOSE AND NEED FOR THE PROPOSED ACTION section of this plan, the Bolin ranch supports some or most of the Threemile elk herd from time to time, and sustains elk-caused damage to fences and pasture crops. By law, DFWP must address Mr. Bolin's current damage problems; further, if DFWP hopes to increase the WMA elk population--with the risk of increased elk-caused damage on the Bolin ranch--the agency feels a responsibility to initiate development of a mutually beneficial cooperative agreement in advance (if possible to negotiate). DFWP's experience on other WMAs (e.g., Blackfoot-Clearwater, Fleecer, and Mount Haggin WMAs) has been that cooperative grazing leases can be employed successfully to meet WMA and private-ranch objectives in these matters.

Subject to further negotiation, the following items of a possible future agreement have been discussed with Mr. Bolin and/or DFWP personnel. About 400 acres of the WMA in section 6 would be fenced to exclude Wheelbarrow and Grayhorse Creeks, and a central water development would be devised and put in place (if feasible), before cattle would graze in this WMA pasture. This WMA pasture would form 1 of 3 pastures in a "rest-rotation" grazing system (Hormay 1970); the other 2 pastures would be existing fenced pastures on the Bolin ranch, each comparable in size to the WMA pasture. The same number of cattle (about 100 cow-calf pairs) that currently graze the 2 Bolin pastures would be spread across 3 pastures under the cooperative agreement. The result of this would be to reduce existing cattle grazing pressure on the involved private habitats--including lands valuable to elk and other wildlife. The rest-rotation grazing prescription would be designed so that grazing would have no negative effect on WMA soils and vegetation and a positive effect on the private lands, compared to the current grazing system. This would benefit wildlife and the private rangelands and ranching operation. Monitoring range condition and trends on the WMA and private lands would be an integral part of any cooperative grazing lease.

The premise for rest-rotation grazing (or other sensitive grazing strategies) is to coordinate periods of grazing and nongrazing (rest) with the needs of forage plants to store energy and reproduce (Hormay 1970). Specific to the Bolin example, WMA section 6 (Pasture 1) might be grazed by all (100 pair) of the Bolin cattle from May 15-June 15 during the first year of the

grazing lease; then those cattle would be moved to a private summer pasture outside the grazing agreement. Pasture 1 would not be grazed again that year, allowing plants to recover some vigor and regrow; the regrowth may provide winter elk forage of higher succulence than ungrazed forage. The second year, plants in Pasture 1 would be allowed to store energy and produce seeds before cattle would be brought in during the October 1-November 1 period; grazing that year would occur while the plants are "dormant." Pasture 1 would not be grazed at all during the third year, giving the plants complete rest and allowing establishment of seedlings that germinated from the previous summer's seed crop. This 3-year grazing cycle would begin again the next year with spring grazing.

In the year that Pasture 1 is grazed during spring, Pasture 2 (on the Bolin ranch) would be grazed in the fall, and Pasture 3 (also on the Bolin ranch) would be rested. Like Pasture 1, Pastures 2 and 3 would be part of the 3-year grazing cycle such that 2 of the 3 pastures would be utilized for about 1 month each year, and plants would be ungrazed during the growing season--and store energy and reproduce--in 2 of the 3 pastures each year. Watts et al. (1987) documented that rest-rotation grazing "may maintain vegetation and soil cover somewhat comparable to ungrazed cattle exclosures."

The specific terms of a future cooperative grazing lease are subject to negotiation, depending upon the availability and condition of suitable grazing lands, existing fencing, compatibility of DFWP and rancher goals, ranch economics, available water and many other factors. Because DFWP is unable to be more specific in advance, the agency expects to attach a MEPA checklist with any future Threemile grazing-lease submitted for consideration and approval by the Fish, Wildlife and Parks Commission. Terms of a lease will specify grazing schedules, cattle stocking rates, properties involved, pasture boundaries, and other pertinent details. Copies of executed, cooperative grazing leases involving similar DFWP properties in Montana are available for inspection at DFWP headquarters in Missoula or Helena.

Standard lease termination language specifies that "the Department reserves the power and authority, at its discretion, to terminate this lease prior to expiration upon ___ days written notice for violation of any of the terms of this lease by Lessee." Typically, cooperative grazing leases automatically terminate after 5 years (or whatever time period is agreed upon in advance) and a new lease must be negotiated if the arrangement is to continue. The lessee is prohibited from subleasing or assigning the lease to others, under penalty of automatic termination. Similarly, "Lessee agrees that this lease shall in no way be the subject of, contained in or referred to in any manner involving an estate or will. Any such reference shall be considered unenforceable and shall not obligate or bind the

Department to continue or transfer this lease." Commission consideration of cooperative grazing leases occurs during regularly scheduled public meetings, providing opportunity for public comment.

In response to public comment, DFWP will attempt to negotiate for regulated public hunting access on the Bolin ranch as part of a cooperative grazing lease.

Weed Control

Efforts to control noxious weeds, particularly spotted knapweed and sulphur cinquefoil, will be increased to achieve soil stabilization, weed control, vegetation restoration, cooperative elk management, mule deer management and public appreciation objectives for the Threemile WMA (Objectives 1-7, 10). The knapweed problem on the WMA was described previously in the PURPOSE AND NEED FOR THE PROPOSED ACTION section of this plan. DFWP will coordinate weed control efforts with adjacent landowners to encourage responsible weed control on their lands and reduce costs for all cooperators.

Broadcast Herbicide Application: Using a helicopter and qualified commercial applicator, DFWP plans to apply picloram herbicide on knapweed infestations within most WMA grassland, nonforested habitats (up to 1,600 acres). In the past, the commercial formulation used was Tordon 22K at a rate of 1/2-1 pint per acre; DFWP plans to continue this practice until a superior herbicide or formulation becomes available. Treatments will occur in spring or fall when knapweed is most susceptible to herbicide. DFWP prefers to aerially apply herbicide whenever possible to avoid the ground disturbance caused by applying herbicide from ground rigs.

Aerial applications will occur only when the air is calm, and will be accomplished near ground level, to prevent herbicide drift into nontarget locations; distinct property boundary contrasts in knapweed occurrence after experimental spraying in 1989 and 1990 indicate that drift of aerially applied herbicide can be closely controlled on the WMA. No forests, riparian areas, standing/running water, or areas with high water tables have or will be sprayed. Broadcast applications will occur before the WMA opens to public access (May 15) whenever possible. Any people or vehicles in the treatment area will be located by helicopter immediately in advance of the operation, and the area will be cleared before any herbicide is applied. One week preceding and one week following application, a sign will be posted at the main WMA entrance announcing the planned herbicide treatment, the areas planned for treatment, and a caution for people with small children and pets to avoid the treated area immediately after spraying.

Spraying of spotted knapweed on the WMA first occurred in 1989. At this writing, about 360 acres have been sprayed, and no WMA site has been broadcast sprayed more than once. Due to concern expressed by some people regarding the use of herbicides, DFWP will aerially retreat sites a maximum of one time through the year 2001 (including sites first treated in 1989 and 1990), and only if the positive grass response to the initial treatment has been lost. (As of 1992, the grass response in the grasslands sprayed in the springs of 1989 and 1990 remains strongly positive nearly 4 and 3 growing seasons, respectively, after initial treatment.) An exception will be made to spot-spray from ground rigs if appropriate to control spotty, accessible knapweed infestations moving from forested or previously missed areas into treated areas; this maintenance activity will be conducted sparingly, and only if needed, with the intention of reducing the need for broadcast retreatments.

The treatment plan for spring or fall, 1992, is to treat about 360 acres of previously cultivated grasslands in section 6 and about 300 acres of native and previously cultivated rangelands in sections 30 and 31 in the Wheelbarrow Unit. This will be the first herbicide application by DFWP in these locations. Similarly, DFWP plans to treat about 40 acres of historically cultivated grasslands in section 19 and about 80 acres of native rangeland in section 20 during May 1993 (first treatment on these lands by DFWP). These treatments, in combination with the spraying of 1989 and 1990, should provide initial knapweed control on nearly all the acres DFWP plans to aerially spray at Threemile WMA.

Roadside and Spot Treatments: Selected roads open to public vehicular travel also will be treated with picloram at a rate of 1 pint per acre. Roadsides and spot infestations in grasslands will be sprayed from vehicles by qualified commercial applicators. Treatments will occur in spring or fall when knapweed is most susceptible to picloram. In response to concerns expressed by some people, retreatments on these disturbed sites will occur less frequently than originally proposed--no more than once every 4 years, and only if needed. These localized treatments will occur on weekdays outside of the general hunting season to reduce potential conflicts with public uses of the WMA. As with broadcast herbicide applications, spraying will occur only during calm conditions, and riparian areas, standing/running water, and sites with high water tables will not be sprayed. One week preceding and one week following application, a sign will be posted at the main WMA entrance announcing the planned herbicide treatment, the areas planned for treatment, and a caution for people with small children and pets to avoid the treated area immediately after spraying.

Alternative Herbicides: DFWP plans to use picloram (Tordon 22K) because it is the most effective chemical for knapweed control, is quite selective for knapweed, is satisfactorily safe to the

environment when legally applied, and is reasonably priced. In recent years, DFWP personnel responsible for Threemile WMA management have actively gained knowledge and experience from numerous and extensive conversations with university researchers and many weed-control experts of various affiliations, from literature reviews, and from first hand monitoring of experimental herbicide applications on the WMA and elsewhere; this experience has led DFWP personnel to conclude that the use of picloram as regulated by law (i.e., label restrictions) is environmentally responsible and appropriate for the purposes outlined in this management plan. Clopyralid (Transline) is another safe, slightly less effective chemical for knapweed control that is less toxic to woody plants than picloram; DFWP would consider its use on a trial basis if it becomes competitively priced and/or if woody plants are a substantial component of a proposed treatment site. In the future, DFWP will continue to use the most effective, environmentally safe and selective herbicides that become available.

Biocontrol: An effective combination of biocontrol agents (i.e., insects, plant diseases, nematodes) for knapweed is not yet available, although research continues and progress is being made. DFWP hopes that at the end of the expected 10-year life of this management plan, biocontrol will be an effective alternative to herbicide application for controlling knapweed on Threemile WMA. Accordingly, DFWP is providing biocontrol research sites for the Montana Agricultural Experiment Station on the nearby Calf Creek WMA.

Besides insects, another biocontrol option at Threemile is to permit forest canopies to close and shade out knapweed on selected sites. DFWP will consider this option on a case by case basis, balancing the need to provide winter forage for elk and deer.

Mechanical Control: To reduce the frequency of herbicide retreatments on grassland sites, DFWP will use mechanical methods when feasible to contain recovering knapweed stands on previously sprayed sites. Mechanical methods also may be used to contain small, localized knapweed populations within and around the few, relatively weed-free bunchgrass sites remaining on the WMA.

Although not a practical alternative to achieve initial control on large acreages where annual knapweed production exceeds 1,000 pounds per acre, DFWP will consider hand-pulling knapweed on selected small sites when volunteers are available to help. Additionally, DFWP will consider limited knapweed-mowing in historically cultivated grasslands to contain roadside and other spot reinfestations for the purpose of delaying respraying.

Prevention: DFWP plans to continue regulating motorized travel on the WMA, and to consider progressively restrictive travel management if needed, to reduce ground disturbance and weed seed

distribution (see Travel Plan section under **PROPOSED ACTION** heading). Any prescribed livestock grazing on the WMA will be managed to conserve vegetation cover and minimize soil disturbance (see Livestock Management section under **PROPOSED ACTION** heading). Elk numbers will be controlled by hunting to keep the herd in balance with available forage and to prevent damage to the range that would promote weed establishment.

Other Vegetation Treatments

Other than livestock grazing and weed control, DFWP would retain the options to use small-scale (less than 200-acres), localized, vegetation treatments such as prescribed burning, mowing, conifer-encroachment cutting, and selective logging to achieve objectives related to vegetation restoration and elk and deer winter range enhancement (Objectives 4, 6, 7). Problems related to this topic were discussed previously in this plan under the **PURPOSE AND NEED FOR THE PROPOSED ACTION** heading.

Burning: As in the past, prescribed fire may be used during early spring, with the on-site support of local fire control authorities, to improve the availability and palatability of herbaceous vegetation to elk and deer in both native and historically cultivated grasslands as needed. Burn frequency will not exceed 5-year intervals on historically cultivated lands nor 10-year intervals on native rangelands. Burning also may be used to control conifer encroachment to maintain elk winter-forage production.

Mowing: As in the past, mowing will occur only on historically cultivated lands as an alternative to burning for the same purpose. Mowing could be replicated at intervals of 1-3 years, depending upon plant phenology, without damage to the existing grasses; however, the potential for compaction problems exists and must be monitored. Mowing also may be used sparingly along roadsides as a means of wildfire prevention and knapweed containment if appropriate.

Logging: Selective logging may be used to control conifer encroachment in grasslands where elk winter forage is declining. Selective logging also may be a treatment appropriate for restoring a more desirable species composition or successional stage in forests that are managed for cover and/or forage; this is dependent upon future detailed inventories (see later Inventory and Monitoring section).

Travel Plan

DFWP plans to regulate public use--motorized and nonmotorized vehicular, and non-vehicular--to help achieve soil stabilization, weed control, vegetation restoration, recreation, and public

appreciation objectives for the Threemile WMA (Objectives 1-4, 9, 10). Problems relating to this topic were discussed previously in this document under the **PURPOSE AND NEED FOR THE PROPOSED ACTION** heading. A travel plan brochure for distribution to the public is attached in Appendix 1.

May 15 To Opening Day of Upland-Bird Hunting: DFWP will provide about 11 miles of open roads (starting at the main WMA entrance in section 19) to provide vehicular access to the Lower Threemile, Wheelbarrow and Threemile Point Units (Appendix 1). Additionally, Bitterroot National Forest Roads #640 and #1334 will remain open in the Upper Threemile Unit. Contrary to past management, DFWP will close yearlong the secondary, public vehicular access to the Lower Threemile Unit, due to low public use, hazardous road conditions, and prohibitive maintenance costs; this secondary access is located in the Upper Threemile Unit, south of Threemile Creek, on a very steep slope. As in the recent past, DFWP will keep about 20 miles of old spur roads closed yearlong to vehicles to allow revegetation.

Opening Day of Upland-Bird Hunting Through November 30: DFWP will provide about 7 miles of open roads from the main WMA entrance to provide reasonable vehicular access to the Lower Threemile, Wheelbarrow and Threemile Point Units, while managing most of the Threemile Point Unit for elk security and walk-in hunting (Appendix 1). In addition, Forest Roads #640 and #1334 will remain open in the Upper Threemile Unit. DFWP will close the gate and maintain the parking area in the NW1/4, NE1/4 of section 6 to facilitate hunting access in the southwest corner of the WMA. Gates will be closed in the SE1/4, NW1/4 of section 32, and in the SE1/4, SE1/4 of section 32 to provide walk-in hunting opportunities. The secondary WMA access road (located south of Threemile Creek in the Upper Threemile Unit, SE1/4, SE1/4 of section 21, near the junction with Forest Road #640) and roughly 20 miles of old spur-roads will remain closed to vehicles yearlong to promote walk-in hunting and allow revegetation.

December 1 Through May 14: DFWP will close the main WMA entrance gate, and keep the secondary WMA access road closed (at the bottom of Threemile Creek canyon; SE1/4, SE1/4 of section 21, near the junction with Forest Road #640) to provide undisturbed habitat for wintering wildlife in the Lower Threemile, Threemile Point and Wheelbarrow Units (Appendix 1). Public vehicular access on Forest Roads #640 and #1334 in the Upper Threemile Unit will be allowed (as in the past) due to a perceived lack of conflict between traditional public use and wintering wildlife needs. Most DFWP-owned winter ranges in Montana are closed to all public use--motorized or nonmotorized--during the winter months. DFWP will enforce this complete-closure option during winter at Threemile WMA (except Forest Road #640 and the area north of Threemile Creek) because the area is increasingly popular for winter hiking, horseback riding and skiing (see previous discussion of problem under the **PURPOSE AND NEED FOR THE**

PROPOSED ACTION heading). The entire WMA will be closed to hunting during the December 1-May 14 period due to the potential confusion of defining only a portion of the WMA closed in the statewide hunting regulations. Trapping is by written permission obtained from DFWP, Missoula.

Some public comment suggested that the WMA remain closed to motorized vehicles until June 15 annually. This would reduce the chance for human disturbance of elk and deer during the calving/fawning seasons and might reduce disturbance to nesting birds and other wildlife. Although not known to be a problem at this time, holiday traffic during Memorial Day weekend--near the peak of elk calving--would be eliminated. In 1990, DFWP questioned WMA hunters on their opinion of keeping the WMA closed to motorized traffic until June 15; the majority supported an extended closure.

DFWP prefers not to extend the closure period until June 15 at this time. The new winter closure to all public use--both motorized and nonmotorized--has changed the situation since members of the public indicated their preference; now, an extended closure would prohibit all use--not just motorized vehicles. Further, most WMA elk are migratory and are not on the WMA during calving, although 30-or-so resident elk typically remain. DFWP currently does not have any information on public-use levels during the May 15-June 15 period to judge if a serious problem exists. Therefore, DFWP plans to use an automatic traffic counter to monitor vehicular traffic from May 15-June 15, and DFWP personnel will be alert to note wildlife use during the course of their spring duties on the WMA. If this information indicates the need for additional public-use restrictions in the future, DFWP will make that proposal and solicit public comment prior to implementation.

Special Motorized Vehicle Restriction: In response to public concern over illegal, motorized traffic off-roads during the summer months, DFWP will prohibit the operation of any motorized vehicle 50 inches or less in width on the Threemile WMA yearlong; this includes (but is not limited to) 2-, 3-, and 4-wheeled ATVs, motorcycles, trailbikes and snowmobiles. This special restriction will not apply on Forest Roads #640 and #1334 which pass through the northeast corner of the WMA. For rationale, refer to the previous discussion of this problem under the **PURPOSE AND NEED FOR THE PROPOSED ACTION** heading.

If this special restriction is not effective, as revealed by DFWP monitoring and public comments over a period of 2-or-more years, DFWP Region 2 plans to request DFWP statewide funds to erect minimum-profile roadside fencing in locations that are most troublesome and where fences are most likely to be effective. If this action also proves ineffective, again over a period of 2-or-more years, DFWP plans to consider closures of selected open roads to prevent ready access to problem areas; however, DFWP

remains committed to a reasonable open-road system in summer and fall that facilitates public appreciation of the WMA.

Signs: DFWP proposes to maintain current sign distribution and quality. DFWP will continue to use carsonite posts or comparable substitutes to designate roads that are closed yearlong; they will be replaced as needed. Pipe gates will be used for closing designated summer roads during hunting season. The large travel-plan sign (amended as needed to reflect the regulations adopted in this revised management plan) with map and explanations will be maintained at the main WMA entrance.

Road Maintenance: DFWP proposes to maintain a main access road that will permit horse trailers to be hauled to the main WMA entrance and permit cars to travel into section 31 in the summer (manage for four-wheel-drive access across Wheelbarrow Creek). DFWP will contract the grading of about 3 miles of a deteriorating road open to public traffic between Spring Gulch and section 6 by summer 1992, to continue providing public access and reduce erosion. As a second priority, DFWP's contractor will regrade 4 miles of the main entrance road between William Pearson's driveway and Spring Creek by summer 1993, to maintain good drainage and access. DFWP plans to regrade these road sections every 5 years. Spur roads closed year-round will not be maintained except to channel runoff as needed to reduce erosion and facilitate revegetation.

In cooperation with the Hamilton office of the SCS, DFWP plans to seed road-cuts and replace and add culverts as needed to reduce siltation problems in Threemile Creek.

Other Public-Use Regulations: As in the past, DFWP will allow motorized vehicles on open roads only--not on closed roads or off-roads--during the May 15-November 30 recreational season (Appendix 1). Camping will be allowed (14-day maximum stay during any 30-day period) from May 15 through November 30, with a "pack-in, pack-out" trash policy. Recreational use by groups of 30 or more individuals will require a special permit from the DFWP Region 2 office. No public access will be allowed from December 1 through May 14 (except on Forest Road #640 and north of Threemile Creek in the Upper Threemile Unit) due to increased public use during winter and impacts to winter wildlife distribution, particularly in the Lower Threemile Unit near the main WMA entrance. Firewood cutting will be prohibited, except for fallen material used for campfires on-site. Changes in these regulations will be made (with public involvement) as deemed necessary to adequately achieve the WMA management objectives, and any new regulations will be prominently posted on-site and listed in updated travel plan brochures (Appendix 1).

Inventory and Monitoring

DFWP will intensify inventory and monitoring efforts to help evaluate progress toward achieving all 10 management plan objectives. Problems related to this topic were discussed previously under the **PURPOSE AND NEED FOR THE PROPOSED ACTION** heading.

Erosion and Vegetation: DFWP will continue documenting the rate of spread of spotted knapweed and sulphur cinquefoil into treated and untreated plant communities along 4 sets of transects established in 1989 (Anon. 1991). Up to 5 additional transect sets will be established as needed to monitor future weed control treatments. Monitoring methods and scope will be expanded to identify circumstances that dictate various rates of spread, and university support will be solicited as appropriate.

In conjunction with DFWP's statewide effort to monitor vegetation trends on its WMAs, transects will be established by summer 1993 to monitor plant species composition and trend. Nested-frequency/photo-plots will be established along the transects to facilitate collection of quantitative and qualitative data for comparison over time (5-year periods). Data collected will include plant species composition, distribution of plant communities, amount of bare soil, movement of soil, litter cover, basal area and vigor of indicator plants, and rate of establishment of noxious weeds. Up to 8 exclosures of sufficient acreage to prevent edge-affected vegetation from biasing quantitative comparisons will be established by summer 1994 to exclude livestock and/or elk and deer, thereby facilitating interpretations of grazing effects (positive and negative). Highest priority sites for monitoring will be rangelands and riparian areas grazed by livestock under a potential cooperative grazing lease, and native rangelands or native/previously cultivated ecotones subjected to elk grazing pressure and/or weed control.

DFWP will continue to examine browse utilization and condition transect #819, and grass utilization transects #T-1, #T-2 and #T-3 annually or biannually to document trends in elk and deer usage. Plant species presence and canopy coverage within Daubenmire plots on the grass utilization transects will be recorded at 5-year intervals to help assess vegetation composition trends and provide a comparison with nested-frequency plots.

Siltation Rates: DFWP plans to cooperate with the Hamilton office of the SCS in its recent effort to reduce siltation of Threemile Creek from all ownerships, including the Threemile WMA. Of particular current interest is erosion of the access roadbed on DFWP's easement across the Wallace Brown property. Additional culverts may be necessary to redirect runoff.

Elk Numbers and Distribution: DFWP plans to continue annual counts from fixed-wing aircraft during spring green-up to assess

elk population trends, document minimum population numbers, and estimate population composition. DFWP will continue to supplement this information with field observations made during winter. Elk and deer track transects will be examined during winter in the Lower Threemile Unit to document elk distributional responses to knapweed control; data will be analyzed and reported by summer 1994, and field efforts will be redirected if conclusions may be drawn at that time. Track transects will be established to monitor elk distribution in response to weed control and any prescribed livestock grazing in the Wheelbarrow Unit by January 1993 (time permitting). DFWP will continue sampling changes in elk feeding habits and diet quality in response to weed control-caused changes in plant species composition, using fecal analysis on a prioritized basis.

Mule Deer Numbers and Distribution: DFWP will continue to record mule deer numbers and distribution incidental to aerial and ground elk-surveys during winter and spring. DFWP will continue annual monitoring of long-established transects to document percent utilization of key shrubs by deer and elk during winter and spring.

Wildlife Species Presence and Abundance: DFWP will initiate a survey by spring 1994 to document wildlife species diversity, distribution and abundance by season on the Threemile WMA. This will produce baseline data for comparison with future surveys to indicate trends and also for comparison with expected species diversity in habitats such as those present on the WMA.

Traffic, Hunting Pressure, and Public Opinion: DFWP will continue operating the hunter checking station at the WMA main entrance during weekends in the general big-game hunting season. At the checking station, DFWP will continue to collect information on hunter numbers, animals seen, harvest, and opinions on WMA management. Also, the checking station will be used to distribute written information and discuss issues with the public. DFWP will continue monitoring traffic levels during the general hunting season using automatic traffic counters, and will expand this effort to document traffic levels throughout the May 15-November 30 public-use period. Also, DFWP will continue to monitor travel-plan compliance and replace road closure signs in conjunction with the checking station effort.

Livestock Numbers and Distribution: DFWP will continue efforts to locate and remove trespass livestock in conjunction with other activities. If cooperative grazing leases are initiated, DFWP will monitor livestock numbers and distribution monthly, and will communicate with the lessee at least quarterly (or more often as needed) to achieve lease and WMA objectives.

Forest Evaluations and Management Prescriptions: DFWP will consult with professional foresters and forest ecologists to assess the current status of forest communities in the Threemile

Point Unit. Any treatment needs or opportunities to return the forest to a more natural successional pattern will be identified, including burning, logging, and any other appropriate measures.

Geographic Informational System (GIS): DFWP anticipates gaining access to a computerized GIS system and global positioning system (GPS) in the near future. Map layers depicting accurate (\pm a few meters) locations of property boundaries, topography, drainages, fencelines, treatment areas, monitoring sites, wildlife sightings, vegetation types and other information may be computerized and manipulated to greatly improve information storage, retrieval, analysis and dissemination to other agencies and the public. DFWP plans to take advantage of its future access to this technology to organize its inventory and monitoring efforts on the Threemile WMA.

Public Involvement

DFWP will continue the information exchanges and public opinion solicitations at the WMA hunter checking station, involving about 150 WMA users annually. WMA informational signs that explain weed control and other management actions will be updated, possibly through the establishment of a self-guided roadside tour with several informational stops. The WMA entrance sign will be upgraded to add more pertinent information and create an improved first impression. Volunteers will be solicited to accomplish tasks such as maintaining bluebird boxes, planting shrubs, pulling knapweed and clearing conifer encroachment. DFWP plans to improve general WMA awareness by Bitterroot Valley residents by contributing occasional articles to local newspapers. This management plan will be distributed to interested groups and individuals. DFWP will continue to conduct tours on request and will expand this effort (as time permits) to solicit interest from more-diverse groups.

IMPACTS OF THE PROPOSED ACTION

(Please review the PURPOSE AND NEED FOR THE PROPOSED ACTION and the PROPOSED ACTION sections of this plan for more detail and explanations if needed.)

Impacts on the Physical Environment

Soils: This plan is intended to help stabilize and promote natural development of the erosive granitic soils prevalent on Threemile WMA. Drainage on maintained roads will be directed to reduce erosion of bare road surfaces, and unmaintained roads will be allowed to revegetate in the absence of vehicular disturbance of the road surfaces. The feasibility of actively reclaiming old roads and other disturbed sites by contracting with a qualified

reclamation specialist will be explored if funding allows. According to recent research by the Montana Agricultural Experiment Station (Lacey et al. 1989), effective spotted knapweed control will reduce erosion on treated sites. Any cooperative livestock grazing leases that may be initiated would be designed to reduce current grazing intensities and habitat impacts on the included private lands--while maintaining existing vegetation cover on included WMA lands--therefore, these leases would be expected to improve soil development overall; however, some microsites of temporarily increased soil disturbance on the WMA would be expected as well. DFWP would adjust grazing systems, and salt or water placement, as needed to recover overused sites if or when they occur. Prescribed-burns during spring could temporarily increase erosion on steep slopes; however, most likely treatment areas are on gentle slopes, and burns will be infrequent on any given site. Logging would be expected to disturb the soil surface; however, this would be minimized by limiting activities to gentle or moderate slopes, dry ground conditions, and small-scale, selective patterns.

Watershed: This plan is intended to reduce current sedimentation rates in streams on Threemile WMA. Any potential, cooperative livestock grazing leases would be designed to reduce current grazing intensities and sedimentation on included private lands, and prevent additional sedimentation on included WMA lands; however, spot sources of increased sedimentation may occur on the WMA temporarily. Herbicides will be applied according to label restrictions to avoid any chemical entry to the water table directly, through the soil, or via runoff into streams. Prescribed burning is not anticipated on sites that would affect watersheds. Logging would be conducted in accordance with "Best Management Practices" administered by the Montana Environmental Quality Council and cooperators to prevent watershed impacts.

Threatened and Endangered Species: There are no threatened or endangered species known on the Threemile WMA. If such species are found at a later date, the location will be mapped and management adjusted, if necessary, to account for the special needs of these species. Additionally, DFWP is aware of the Montana Natural Heritage Program's listings of plants, animals and plant communities that are vulnerable to extirpation in Montana or in need of further research; if any of these species are discovered in the future, DFWP will adjust its management, if necessary.

Native Plant and Wildlife Communities: This plan is intended to benefit and feature native plant and animal communities on Threemile WMA and adjacent private lands. It will stop short of intensive reclamation of historically cultivated grasslands due to excessive costs and the value of the existing communities (with knapweed controlled) as winter-spring elk forage. When

picloram is applied, grass production will dramatically improve, while forb production will be temporarily depressed; recovery of a normal forb component would be expected in 1-3 years post-treatment (Bedunah and Carpenter 1989). However, where knapweed infestations exist, grass and forb production is severely depressed such that the benefits of removing knapweed will outweigh the temporary costs to particular forb species. Detrimental effects of picloram on forbs will be less of a problem on the previously cultivated sites where a healthy native forb component currently does not exist. Forests, riparian areas, or woody draws will not be sprayed (other than uplands with woody vegetation that might be treated with specialized herbicides such as clopyralid), and woody species typically found in Threemile's grasslands (such as sagebrush, rabbitbrush, ponderosa pine seedlings, and serviceberry) are not killed by the prescribed rates of picloram. Any cooperative livestock grazing leases would prescribe grazing that maintains native communities on the WMA and improves native communities on private land. By this plan, DFWP proposes to improve monitoring efforts on Threemile WMA; hence, DFWP will be more likely to detect unexpected impacts to native communities and will adjust planned actions accordingly.

Elk, white-tailed deer and mule deer will benefit from the proposed vegetation manipulations (spraying, livestock grazing, burning, mowing) in previously cultivated lands as a result of increased forage production and greater availability of succulent, green growth and regrowth in the spring, fall and early winter. In addition, the dense stands of western wheatgrass that have been produced as a result of recent knapweed control activities provide bedding sites for adult and newborn elk and deer. Ground-nesting birds, such as meadowlarks, will benefit from the increased vegetation cover provided by herbicide treatments, and vole populations have been observed to noticeably increase within similarly dense stands of grass on Ninepipes WMA (J. Grant, Ninepipes WMA manager, Pablo, pers. commun.), with corresponding increases in predatory birds and mammals. Picloram sprayed upon bird eggs would not affect hatching or survival unless the recommended application rates were exceeded many times (USDA 1984). Livestock grazing, while providing grassland structure diversity that would be expected to increase bird and small mammal species diversity in moderately grazed grasslands, also would be expected to destroy some nests by trampling during May or June; however, the proposed action would not increase this problem overall because a corresponding area of private land would be rested from grazing whenever grazing occurred on the WMA. Burning will occur prior to nesting by most bird species and during periods of the day when most small mammals are underground. Mowing will occur on small acreages late in the nesting period, or afterward (mid-late June), and will destroy few nests.

Archeological Sites: DFWP has not identified any archeological sites on the Threemile WMA. Currently, DFWP awaits the results of a database search being conducted by the Montana State Historical Protection Office regarding any archeological data pertinent to this site.

Aesthetics: This plan is intended to improve the aesthetics of Threemile WMA for people who appreciate native plant and animal communities. In 1989, 79% of 71 hunters interviewed on the WMA favored DFWP's weed spraying, while 4% opposed it; in 1990, 87% of 151 hunters favored the weed spraying, while 6% opposed it. This suggests that most people prefer a knapweed-free landscape, but some people would be negatively affected by the sight of knapweed spraying and/or the smell of herbicide.

Jack-leg/rail fences would be more pleasing to some people than the existing wire fences. Livestock grazing on the WMA may be offensive to some people, while others would not be affected. Hunting on the WMA might disturb some people, but general impressions indicate that most WMA users are hunters.

Cumulative Impacts: By attempting cooperative management with adjacent landowners, DFWP plans to exert a positive cumulative impact on the physical environment. A cooperative livestock grazing lease, in particular, may not appear beneficial to the existing physical environment if viewed only within the confines of the WMA, but would be highly beneficial when viewed across all affected ownerships. DFWP considered the possibility of its weed control actions contributing to a possible local or widespread accumulation of agricultural chemicals in the environment. However, upon reviewing the available information on the breakdown and movement of picloram and related chemicals in the environment (reviewed by Lacey and McKone 1992), DFWP finds this possibility to be remote. Efforts to reduce erosion and stream siltation on the WMA and adjacent private lands will exert a positive cumulative impact in the Threemile drainage. The products of implementing this plan, measured in habitat improvement and expansion, will be of ever-increasing value in the future as habitat losses continue elsewhere in the Bitterroot Valley and throughout Montana.

Impacts on the Human Environment

Local Economy: As in the past, the proposed action would benefit the local economy by attracting hunters, wildlife viewers and others whose recreational pursuits support local businesses. Additionally, DFWP's routine fence maintenance, aerial surveys, and contracted road maintenance would continue to benefit local businesses. All actions outlined in this plan that represent a change in past DFWP management on the Threemile WMA would be more

likely to benefit the local economy than harm it. Specifically, contracted herbicide applications would provide work for private businesses, and cooperative livestock grazing leases--if initiated--would benefit the agricultural economy. DFWP retains the option to harvest timber if appropriate to achieve ecosystem management objectives; this also would benefit the local economy.

Quality of Recreational and Wildlife-Related Activities: Similar to the discussion of "Aesthetics" presented under the previous section (**IMPACTS OF THE PROPOSED ACTION ON THE PHYSICAL ENVIRONMENT**), the proposed action will affect each recreationist differently, depending upon whether he/she prefers a "natural" or "managed" environment. Over a period of years, as weeds are controlled, native plant communities improve and wildlife populations respond, this plan would be expected to improve recreational quality. From time to time, however, some individuals may be negatively impacted when they encounter active weed spraying, logging or livestock.

Cumulative Impacts: DFWP anticipates growing interest in Threemile WMA as a recreational destination due to the rapid, local population growth and a decreasing availability of easily accessible public rangelands in the lower Bitterroot Valley. As the WMA habitat improves, it will be a source of satisfaction to people who are concerned with decreasing habitat quality in surrounding areas. The economic benefits of implementing this plan, however small individually, are part of a broader shift in the local economy that has occurred to partially offset recent declines in the timber industry.

Impacts of Using Picloram or Similar Herbicides

This section has been added in response to concerns raised by Friends of the Bitterroot, Inc., and their request for "disclosure" regarding the risks of using herbicides. In conversation, some members revealed that their opinions were shaped, at least in part, by past experiences with pesticide manufacturers, a distrust of government regulatory agencies responsible for registering pesticides, a distrust of research funded by chemical companies, a concern for the industry-wide problem of waste disposal and pollution at the manufacturing site and elsewhere, knowledge of illegal herbicide applications by others, personal susceptibility and health problems with pesticide exposure, and high awareness of the environmental damage caused by nonrelated pesticides such as DDT.

While the global problems posed by the production and use of chemicals are of concern to everyone, and a healthy skepticism of the claims made by chemical companies and governments may be justified and/or understandable, it is DFWP's professional

responsibility to sort through these biases--justified or not--in order to uncover the pertinent scientific information needed to make a responsible decision. DFWP's research into the herbicide/knapweed-control question has brought the agency to a decision that spraying picloram (commercially available formulation: Tordon 22K or comparable product) is an appropriate and responsible action to take in the management of Threemile WMA. However, DFWP's awareness that there is some element of environmental/human risk (known and unknown) in every action taken (e.g., spraying, not spraying, biocontrol, hunting, driving) has caused agency personnel at Threemile to restrict the frequency of picloram application to levels well below "safe" maximums, to frequently reduce application rates below those prescribed as "safe," and to apply mechanical and biological methods to the extent feasible--even though these methods currently are far less effective at knapweed control.

DFWP has consulted the reference entitled Pesticide Background Statements--Volume 1. Herbicides (USDA 1984). The 77-page section on picloram reviews information from 105 studies on topics including (but not limited to) toxicity to invertebrates, microorganisms, fish, birds and mammals (acute, subchronic, chronic, reproductive effects and carcinogenicity); environmental fate; and bioaccumulation. In summary, the document states: "Picloram and its salts are low in toxicity to most nontarget organisms. Picloram is relatively nontoxic to soil microorganisms at concentrations up to 1,000 ppm. For most species of fish, picloram formulations are only slightly toxic with median lethal concentrations of greater than 10 ppm. The acute toxicity for birds is greater than 2,000 mg/kg. In subchronic feeding studies, with birds, the LC₅₀ is greater than 5,000 ppm. In studies with experimental and farm animals, the acute toxicity ranged from 8,200 mg/kg in rats to greater than 950 mg/kg in cattle. Tests with rabbits indicate that picloram is not likely to be absorbed through the skin. . . . Studies in rats and mice showed that picloram is nonteratogenic even at doses toxic to the pregnant animals, and has little or no effect on fertility, reproduction, or development of offspring." This document is available for public inspection upon request at DFWP Region 2 headquarters, Missoula, and was written to facilitate communication and understanding; other herbicides also are evaluated, providing a basis for comparison.

While DFWP is satisfied with the safety and appropriateness of picloram for the uses planned on the Threemile WMA, human handling of the herbicide may serve to increase or decrease the margin of safety, depending upon the procedures followed. DFWP personnel typically are responsible for hauling the herbicide to the WMA at the start of spraying. The herbicide is contained in 2.5-gallon plastic containers (2 per box); this promotes easy, safe handling and keeps the containers upright in the back of a pickup truck. For a maximum-sized spraying project of about 700 acres, at an application rate of 0.75 pints picloram per acre, 70

gallons of Tordon 22K would be transported by DFWP to the WMA. Professional applicators--fully insured, certified, experienced and recommended by weed-control experts that DFWP consults with routinely--handle the herbicide on-site. Mixing of water and herbicide is completely contained in a bulk tank trucked on-site by the applicator. Smaller amounts of the herbicide mixture are pumped directly from the bulk tank to the helicopter or ground-application-rig. In 1989, the helicopter treatment of 280 acres was accomplished in about 2 hours on 1 morning; in 1990, the treatment by ground-rig of 60 acres of spot-infestations took about 15 hours over 3 days.

Considering 360 acres aerially sprayed in 1989-1990, planning for the initial aerial spraying of another 800 acres (in up to 3 separate spraying operations), and planning for 1 retreatment (in up to 5, separate aerial operations) of the combined 1,160 acres, aerial spraying operations will have occurred on the WMA for a total of about 20 hours during parts of 10 days in the 12-year period through the year 2001 (DFWP transport of herbicide to the site adds 20 hours); this amounts to 0.04 of 1% of the 12-year period under consideration. Considering 60 acres ground-sprayed in 1990, and planning for a maximum of 5 similar operations covered by this document, ground spraying operations will have occurred on the WMA for a maximum of 75 hours over 15 days in the 11-year period through 2001 (DFWP transport of herbicide to the site adds 12 hours); this amounts to 0.09 of 1% of the 11-year period under consideration. Realistically, there appears to be a greater risk of DFWP personnel, hunters or local residents suffering a vehicle accident and leaking gasoline from a ruptured fuel tank into Threemile Creek--a daily risk with multiple opportunities for incident--than the risk of an accident in handling herbicides on or enroute-to the WMA.

Application costs (Tordon 22K and commercial applicator) for aerial treatment have averaged \$14.00 per treated-acre, and costs for treatment from ground-rigs have averaged \$22.00 per treated-acre. Planning a maximum of 2 aerial treatments (1 treatment and 1 retreatment) on 1,160 acres during a 12-year period, the application cost would total \$32,480, averaging \$2,706 annually or \$2.33 per treated-acre per year. Planning a maximum of 200 treated-acres by ground-rigs during an 11-year period, the application cost would total \$7,920, averaging \$720 annually or \$3.60 per treated-acre per year. For comparison, mowing knapweed along roadsides and in spots to partially contain--rather than control--spot infestations of knapweed is comparable in per-treatment cost to the commercial-applicator cost (minus herbicide cost) of covering the same area with a ground-rig for spraying (both methods involve time, transport of similar equipment, fuel and driving over all treated infestations); this cost is about \$14.00 per acre. Mowing must be done at least once every year on every treated acre to be minimally effective; this would result in a minimum cost of \$14.00 per-treated-acre per year for the same coverage accomplished by spraying from a ground-rig.

ALTERNATIVES TO THE PROPOSED ACTION

Conservation Easement

DFWP considered the option of selling or trading the Threemile WMA to return the property to private ownership. To protect wildlife habitat attributes on the WMA, regardless of future ownership transfers, a conservation easement could be placed on the property to mandate proper environmental stewardship in perpetuity, assuming that the property could be sold to a private party with such an easement in place. In theory, significant impacts to the physical environment could be avoided with the WMA under private ownership and a conservation easement held by DFWP. However, a significant loss of public access and recreational opportunities would be difficult to avoid under this scenario because most private landowners would be reluctant to compromise their right to control access.

DFWP has postponed a decision on this alternative for the expected 10-year duration of this management plan. DFWP believes that the habitat potential of Threemile WMA has not been fully explored and developed. Plans to restore native habitats and increase winter elk numbers, while providing public recreation, may be implemented most effectively under DFWP ownership. At the end of the upcoming 10-year period, DFWP will be able to evaluate its progress, determine what habitat potential remains to be developed, and decide if Montana's wildlife objectives could best be met with Threemile WMA under DFWP or private ownership.

No Livestock Grazing (No Action)

DFWP considered an alternative that would continue to exclude livestock from the WMA. This alternative would, overall, have a similar effect on the physical environment as the proposed action, if only the area within the WMA boundaries is considered. "No livestock grazing" would reduce some temporary vegetation and soil damage on a few microsites within the WMA, compared to the proposed action. Conversely, "no livestock grazing" would reduce the amount of succulent, green plant material for elk and deer forage in the fall and spring on the WMA, compared to the proposed action.

This alternative would have a mixed impact on the human environment, compared to the proposed action. A slight improvement in the quality of public recreational opportunities on the WMA might be expected in the absence of livestock. Conversely, "no livestock grazing" would have a small negative impact on the agricultural community and local economy, compared to the proposed action.

Because this plan attempts to address the needs of a broader ecosystem beyond the boundaries of the WMA, DFWP does not prefer the "no livestock" alternative. Without the option of providing grazing incentives to private landowners, the opportunity to influence habitat management on adjacent private lands would be lost. Further, an increase in the elk herd as proposed may only occur through a partnership between DFWP and affected private landowners. Permission to graze livestock on the WMA, under a carefully prescribed system, would acknowledge the private landowner's reciprocal role in providing a portion of the forage to support the proposed elk population increase. The "no livestock" option would negatively impact soils, watershed, and native plant and wildlife communities on adjacent private lands compared to the proposed action. Allowing no grazing on the WMA would result in reduced tolerance for elk grazing on private lands, which could make it impossible to meet the objective for increased wintering elk populations.

No Herbicides (No Action)

DFWP considered an alternative that would exclude the use of herbicides to control noxious weeds on the WMA. This alternative would retain the use of preventive measures such as road closures and of biological or mechanical control options.

DFWP does not prefer this alternative because of the negative impacts to the physical and human environment, compared with the proposed action. An effective combination of biological control agents for spotted knapweed probably will not be available during the expected 10-year life of this plan. Similarly, mechanical control measures will not significantly decrease existing knapweed densities on the WMA. As a result, the "no herbicide" alternative would accept existing and increasing knapweed densities on the WMA for at least the near future.

Continued dominance by knapweed would increase soil erosion and siltation, compared to the proposed action. Native plant and animal communities would be stressed and increasingly threatened as knapweed spreads. Aesthetics and recreation quality, in the eyes of most people interviewed by DFWP, would be negatively impacted. The local economy would be slightly impacted by the loss in spraying contracts.

DFWP foresees a reduced role for herbicides to control knapweed in the future as effective biological controls become available. In fact, DFWP has relinquished herbicide weed-control options on the nearby Calf Creek WMA to provide a field testing area for new biological control agents under study by the Montana Agricultural Experiment Station at Corvallis. Until biological controls are ready, DFWP proposes to apply herbicides conservatively, well within the environment's known capacity to accommodate the herbicides, and under the guidance of experts.

Travel Plan: No Action

The travel plan which has been in place since 1988 provides the framework for both the "no action" alternative and the proposed action regarding the travel plan (refer to previous rationale and discussion in PROPOSED ACTION section). However, "no action" would leave the WMA open to nonmotorized public use during the Dec. 1-May 14 winter closure, leave the WMA open to ATV and motorcycle use on open roads from May 15-November 30, and leave an extra 2 road-miles open to motorized travel from May 15 to the opening day of upland-bird hunting. Again, refer to the PROPOSED ACTION and PURPOSE AND NEED FOR THE PROPOSED ACTION sections.

No Motorized Access

DFWP considered allowing no motorized access on the WMA. This alternative would benefit the physical environment, compared to the proposed action. Only limited administrative vehicle access would be necessary, which would allow eventual revegetation of most WMA roads and trails. Illegal off-road damage to soils and vegetation by motorized vehicles (which DFWP believes is minimal) would be reduced, but not eliminated, because illegal entry would still be expected. Human disturbance to wildlife would be reduced, primarily during hunting season.

DFWP does not prefer this alternative because of highly negative impacts to the human environment (i.e., recreational users), which would reduce public support for the benefits to the physical environment proposed by DFWP. An important recreational opportunity for many members of the public would be lost, which would impact the local economy as well.

Instead, the proposed action will allow public use compatible with management objectives for soil, vegetation and wildlife. Resulting negative impacts will be expected in isolated microsites, and/or for short time periods, but will not be significant across the landscape or at the wildlife population level.

Less Motorized Access

In response to public comment, DFWP considered an alternative that would close an additional 6.5 miles of open roads: the spur road to the parking area in the ENE portion of section 19, the loop in the SW corner of section 29, and the roads that intersect just south of Spring Gulch in the NW corner of section 32. This alternative would reduce summer open-roads from 11 miles to 4.5 miles compared to the proposed action, and would reduce hunting season open-roads from 7 miles to 4.5 miles. Public comment suggested these closures would contribute to wildlife security

and help reduce weed spread.

DFWP does not believe the effect of this particular alternative would be detectably beneficial to the physical or human environment. The implementation of the current Threemile WMA travel plan in 1988, with the benefit of extensive public involvement in 1987-1988 (Thompson et al. 1991), was a major action needed to substantially alleviate the problems of poor wildlife security and excessive motorized vehicle traffic (contributing to weed spread). The "less motorized access" alternative would not substantially increase the positive effects of the existing travel plan, but would reduce the ability of the general public to traverse and appreciate the WMA in locations and during times that are not in noticeable conflict with the primary purpose of the WMA. DFWP's proposed action of eliminating all use by ATVs and motorcycles addresses one major concern related to this issue, and DFWP plans to take further action--including considering additional road closures--if needed in the future (see PROPOSED ACTION). DFWP does not recognize a need that would justify the "less motorized access" alternative at this time.

More Motorized Access

DFWP considered the option of allowing public access on all established roads (i.e., close no roads) during the May 15 through November 30 public-use period. This would not change the amount of motorized access in most of the Upper Threemile Unit, but would increase the amount of open roads on the Lower Threemile, Threemile Point and Wheelbarrow units from about 7 miles to about 33 miles during the September 1 through November 30 period. Many of the currently closed roads would not be driven by most people if they were opened because road conditions are prohibitive; therefore, roads with significant vehicular traffic might total 20 miles.

This alternative would increase soil erosion, compared to the proposed action, unless DFWP initiates costly road reconstruction, drainage control and periodic maintenance. Vehicular travel on the currently closed roads would contribute to the spread of knapweed through a variety of habitats on the WMA. Open road densities during hunting season would increase from about 0.9 miles/section currently, to over 4 miles/section, which would be in excess of Montana Fish, Wildlife and Parks Commission objectives for open road densities by a factor of 4. The wider distribution of motorized traffic on the WMA during hunting season would reduce elk security and more readily displace elk to private lands. Recreationists who prefer a walk-in hunting opportunity would be negatively impacted, while those who prefer to drive might be positively affected.

DFWP does not prefer this option because the current and proposed

travel plan is the product of an intensive public involvement effort (see Thompson et al. 1991, in ANNOTATED BIBLIOGRAPHY section). In 1990, 76% of Threemile WMA hunters supported the travel plan, while only 14% opposed it. The only benefit of the "more motorized access" alternative would be increased satisfaction among members of the public who prefer to drive more WMA roads, and DFWP surveys indicate that this benefit would be achieved at the cost of current satisfaction levels among the majority of WMA users.

FINDINGS OF THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT

Based on an evaluation of impacts to the physical and human environment, the proposed action is not a significant action affecting the human environment; therefore, an environmental impact statement is not an appropriate level of review.

PUBLIC COMMENT

During the formal comment period from April 10 through May 11, 1992; and during the period from May 12 through June 8, 1992, while the revised management plan and decision were being finalized, DFWP received and incorporated 10 different sets of public comments. Three sets of comments were from federal agencies, 2 were from "special interest" groups, 3 were from individuals representing themselves only, and 1 was from the Montana Environmental Quality Council--with which DFWP consulted frequently in the preparation of MEPA documentation. These comments and any pertinent DFWP correspondence are attached in Appendix 3. In addition, DFWP received helpful suggestions in the margins of the April 10 draft from Dr. Les Marcum, University of Montana; these notes are not transcribed here, but are available at DFWP's Missoula office. DFWP received a response from 7 of the 22 organizations/individuals to whom the April 10 draft was mailed for review (mailing list attached in Appendix 3). The three remaining individuals who commented heard about the proposed action and EA from others, or read about it in the legal notices DFWP presented to the Missoulian, Ravalli Republic, and Bitterroot Star newspapers (legal notices attached in Appendix 4). DFWP personnel involved in preparing this plan are especially appreciative of the time and effort the responding individuals invested to help DFWP do the best possible job. All respondents and all individuals/groups on the original mailing list will be sent this final revision.

Agencies/Groups Contacted

The following agencies, groups and individuals received a copy of the draft plan for their review and comment, and will receive a copy of this final revision.

Bitterroot National Forest
Lolo National Forest
Montana Environmental Quality Council
Ravalli County Fish and Wildlife Association
Soil Conservation Service, Hamilton Office
Montana Department of State Lands
Representative Bob Thoft
Representative Fred Thomas
Montana Audubon Society
Montana Wildlife Federation
Montana Stockgrowers Association
Ravalli County Chamber of Commerce
Bitterroot Backcountry Horsemen
St. Mary's Saddle Club
Friends of the Bitterroot
Ernie Bolin, neighboring rancher
William Pearson, neighboring rancher
Wallace Brown, neighboring rancher
Richard Hutto, University of Montana ornithologist
Montana Agricultural Experiment Station
C. Les Marcum, University of Montana elk researcher
Greg Barkus, Montana Fish, Wildlife and Parks Commission

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Theses, reports and other accessible documentation
of research and management performed
on the Threemile Wildlife Management Area, Ravalli County,
Montana; compiled in March, 1992

Anon. 1991. Wildlife management area vegetation monitoring, 1987-1991. Report of Project 5822. [Habitat Bur., Wildl. Div., Mont. Dep. Fish, Wildl. and Parks, Helena.] 172pp.

This is a progress report prepared by Henry Jorgensen (although his name is not on the document) that summarizes and catalogues vegetation monitoring and inventory activities on the DFWP WMAs statewide. Four knapweed monitoring plots were established on the Threemile WMA in 1989. Plots 1, 2 and 4 were on the edges of weed patches within bluebunch wheatgrass/Idaho fescue dominated hillsides in section 20. Plot 3 was on the edge of a previously cultivated knapweed area in section 19, and was treated with picloram in May, 1989. In all plots, the number of microplots containing mature knapweed plants increased between 1989 and 1991. Knapweed density also increased in microplots where mature plants were already established. Annual monitoring will continue to document the rate of knapweed spread. Graphs of weed plot data are included in the appendices, along with descriptions of plot locations.

Beall, R. C. 1974. Winter habitat selection and use by a western Montana elk herd. Ph.D. Thesis, Univ. Montana, Missoula. 197pp.

Winter habitat selection and use by elk on the Threemile WMA was evaluated from June 1969-March 1973. Objectives were to evaluate habitat selection and use in terms of activities, ambient meteorological and radiation conditions, and seasonal changes. Habitat types and elk activity areas were instrumented with recording thermographs, hygrothermographs, microbarographs, anemometers, snow courses, and portable net radiometers. A base meteorological station, on site, was equipped with a Beckman-Whitley hemispherical radiometer, a Soumi-Kuhn ventilated net radiometer, and temperature sensing devices. Elk occupied elevations with less than 18 inches of snow. Elk reacted to changing ambient air temperature and solar and thermal radiation conditions by selecting bedding sites which enhanced control of body temperature. Elk responded to varying temperatures and wind velocity combinations by seeking shelter when the wind chill factor approached minus 25 degrees F. Elk sought shelter under all temperatures when wind velocity exceeded 30 mph. Elk appeared to become conditioned to logging activity, but the altering of elk habitat created an adverse ecological situation which was avoided by elk. Areas logged on the study area received light

to medium use in winters prior to logging, and no use the winter following logging. This thesis features a history of the Threemile WMA, a detailed literature review, maps of elk movement patterns on the WMA, and an appendix that presents results of vegetation surveys, including an assessment of forage utilization by elk.

Bedunah, D., and J. Carpenter. 1989. Plant community response following spotted knapweed (Centaurea maculosa) control on three elk winter ranges in western Montana. Pages 205-212 in P. K. Fay, and J. R. Lacey, eds. Proceedings of the knapweed symposium. Plant and Soil Sci. Dep. and Exten. Serv., Mont. State Univ., Bozeman.

This paper presents the results of follow-up observations on the work presented in Carpenter's (1986) thesis. Knapweed control and grass response were monitored 2 and 4 years following the 1985 picloram and clopyralid treatments on the Threemile WMA. All herbicide treatments were effective at controlling spotted knapweed and increasing grass standing crop two growing seasons after treatment. Native forb diversity was not decreased by herbicide treatments. After 4 growing seasons only the picloram treatments of 1/4- and 3/8-lb/acre maintained adequate knapweed control. The control (check) plots at Threemile averaged 1,103 lb/acre knapweed standing crop in 1987. Two seasons after treatment, grass averaged 522 lb/acre in the controls compared with 1,378 lb/acre in the herbicide-treated plots. None of the herbicide treatments completely eliminated any species, including native forbs, and few significant differences were found in native forb densities. For these sites it was apparent that knapweed was having a large impact on native forbs. On control (check) plots at Threemile, no native perennial forb occurred at densities greater than 0.6 plant/m², and knapweed density averaged 196 plants/m², which gave the site the appearance of a knapweed monoclinal.

Carpenter, J. L. 1986. Responses of three plant communities to herbicide spraying and burning of spotted knapweed (Centaurea maculosa) in western Montana. M.S. Thesis, Univ. Montana, Missoula. 110pp.

Picloram, clopyralid, picloram + clopyralid, and metsulfuron methyl were sprayed on 3 spotted knapweed infested range sites, including the Threemile WMA main entrance area (section 19 SE), in the spring of 1985. The objectives were to: (1) determine which herbicide(s) provide the best control of spotted knapweed, (2) determine whether burning prior to spraying would increase herbicide effectiveness, (3) determine grass standing crop response following treatment, and (4) compare herbicide effects on nontarget forb species. Picloram was the most

effective herbicide for knapweed control; after 15 months, 0.42 kg/ha of picloram continued to prevent any knapweed growth. Clopyralid had the least residual effectiveness for controlling knapweed. On treatments that initially controlled knapweed, standing crop of all vegetation increased by up to 375% after 15 months. Kentucky bluegrass, Canada bluegrass and prairie junegrass increased more readily than species such as rough fescue, Idaho fescue and bluebunch wheatgrass; however, all grasses were observed to increase in size and vigor following knapweed removal. Clopyralid was the most selective herbicide relative to the forb species tested. Picloram and metsulfuron methyl were the least selective, causing considerable damage to several nontarget forb species. The author speculated that grazing disturbance may greatly increase the reinfestation rate once a herbicide loses effectiveness. This thesis includes a literature review of picloram, clopyralid and metsulfuron methyl characteristics; a detailed presentation of herbicide effects on forb families and species; and appendices which include a list of all plants found on the Threemile site.

Hakim, S. A. 1975. Range condition on the Threemile Game Range in western Montana. M.S. Thesis, Univ. Montana, Missoula. 62pp.

Six sites (4 natural grasslands and 2 seeded grasslands) on the Threemile WMA were selected for study because of suspected big game use or other ecological considerations. All sites were sampled during the summer of 1973 (a relatively dry year) for basal vegetation cover, production, and relative deer and elk use. The "knapweed site" was located in section 20 SW, the "bluebunch wheatgrass-Columbia needlegrass site" was in section 32 NW, the "yarrow site" was in section 31 SE, the "bluebunch wheatgrass site" was in section 6 NW, the "crested wheatgrass-alfalfa site" was in section 6 NW, and the "crested wheatgrass site" was in section 6 NW. A soil profile of the Shook coarse sandy loam characterizing all but the knapweed and bluebunch wheatgrass sites is described. Cover, composition of cover, frequency of grasses, and production on all sites is presented. Using SCS methods, the bluebunch wheatgrass site was rated in excellent condition, the bluebunch wheatgrass-Columbia needlegrass site was in good condition and the yarrow site was in high poor condition. The bluebunch wheatgrass site received the highest apparent use by elk and deer, while the knapweed site received the lowest. Appendices include a plant list.

Lavelle, D. A. 1986. Use and preference of spotted knapweed (Centaurea maculosa) by elk (Cervus elaphus) and mule deer (Odocoileus hemionus) on two winter ranges in western Montana. M.S. Thesis, Univ. Montana, Missoula. 72pp.

Use and preference of spotted knapweed by elk and mule deer were investigated on the Threemile and Calf Creek WMAs in Ravalli County, western Montana from December 1985-April, 1986. On the Threemile WMA, studies were confined to sections 19 and 20 (northwestern corner). Use was assessed from pellet analysis and preference was evaluated from use and availability measurements obtained on feeding sites. Forage value of knapweed on open and forested sites was determined by analyzing percent crude protein, fiber, and lignin content of the dried flower tops. Deer consumed knapweed throughout the study period on both study areas, while elk consumed knapweed only during winter. On some feeding sites, knapweed was preferred by deer and elk over other plant species. Knapweed consumption seemed to be related to its high availability. Spotted knapweed density on Threemile WMA was 90 plants/m² on open sites, 47 plants/m² on scattered pine sites, and <1 plant/m² on forested sites. Areas dominated by knapweed were not utilized as major feeding areas by deer and elk. In the mild winter of 1985-86, the largest group of mule deer observed on the Threemile study area was about 20 and the largest elk group was 17. Crude protein content averaged 6.6% for knapweed flowers. High crude protein and low lignin values associated with the flower tops suggested that digestible energy would be high. Knapweed content in fecal samples ranged from 1.5-10.2% for deer and from 0-13.1% for elk.

Marcum, C. L. 1975. Summer-fall habitat selection and use by a western Montana elk herd. Ph.D. Thesis, Univ. Montana, Missoula. 188pp.

Summer-fall habitat selection by the elk herd that winters on Threemile WMA was investigated from 1971-1973. The study area, described by radioed-elk relocations, included the WMA (except the northwestern corner), the Sapphire Divide from Cleveland Mountain to the head of Ambrose Creek, and the Rock Creek drainage from the mouth of Cinnamon Bear Creek to mid Sawmill Gulch. The detailed study area description is a useful reference. Twenty elk (5 bulls and 15 cows) were captured and radioed for study in 2 corral traps that were located in the southwestern quarter of the WMA. A total of 1,116 summer-fall relocations of radioed elk were obtained, primarily from aircraft. Food habits were documented by analyzing 76 feeding site examinations and 36 rumen samples from hunter-killed elk. Forbs were the most important forage source in summer, followed by browse and graminoids. Graminoids were the preferred forage during the fall; browse remained important and forbs declined in importance.

Elk selected the following habitat factors: (1) DF/Caru and AF/Gatr habitat types, (2) southwest and south aspects, (3) gentle slopes, (4) drainage bottoms and upper slopes, (5) elevations from 5,350-6,349 feet, (6) overstory canopy coverage

of 26-75%, and (7) areas within 150 yards of water. When in openings, elk selected for areas near timber. Open system roads and areas within 550 yards of open system roads were selected against by elk, the use of open spur and four-wheel drive trails did not differ significantly from availability, and closed roads were selected for. Much of the displacement of elk from open roads during hunting seasons was in excess of 1 mile. Clearcuts were selected against by elk throughout the study. Elk were displaced during summer and fall months by road building and logging when those activities occurred at higher elevations in major drainages. Potential detrimental effects of road building and logging activities on elk can be mitigated by confining those activities to as small an area as possible during a given time period and closing adjacent roaded drainages to traffic. Elk avoided human activity, not the roads.

Marcum, C. L., and W. D. Edge. 1991. Sexual differences in distribution of elk relative to roads and logged areas in western Montana. Pages 142-148 in A. G. Christensen, L. J. Lyon, and T. N. Lonner, compilers. Proceedings of elk vulnerability--a symposium. Montana State Univ., Bozeman.

This is a publication from Marcum's (1975) thesis on the Threemile elk herd. From June through November, 1971-1973, 5 radioed bulls were relocated 342 times and 14 cows were relocated 655 times. During summer, 4 of 6 distance classes $<1,599$ m from open system roads were used less by bulls than by cows. Conversely, use of areas $\geq 1,600$ m from open system roads by bulls was greater than use of these areas by cows. Use within disturbed areas was 19.9% by cows and only 1.9% by bulls. Patterns of use during fall months were similar to those for summer months, but with fewer significant differences. However, use of areas $\geq 1,600$ m from all types of disturbance during fall months was greater by bulls than cows. Sexual differences in distribution may reflect a stronger response to disturbance factors for bulls than for cows and may result in cows being more vulnerable to human-caused mortality.

Montana Department of Fish, Wildlife and Parks. June 14, 1989. Video tour of the Threemile Wildlife Management Area (WMA) with Claude Smith, first WMA manager. 2 hr., 50 min. Wildlife Division, Region 2, Missoula. Two, 1/2-inch videocassettes.

This video documents the sights and conversations of a tour across the Threemile WMA on June 14, 1989. Participants were Claude Smith (Threemile WMA manager, 1967-1982, driving the vehicle and wearing the cowboy hat in the video), John Firebaugh (DFWP Region 2 Wildlife Manager, clean shaven), Henry Jorgensen (DFWP plant ecologist for WMAs statewide, bearded) and Mike Thompson (DFWP Region 2 WMAs manager since 1987,

cameraman and interviewer). A resident of the Bitterroot Valley since the 1920s, Claude provides a history of ownership patterns and land practices on the WMA and Threemile area, based largely on his personal experiences. The route driven and videoed began at the northwestern WMA corner along Threemile Creek and ended leaving the WMA in section 6; the route is traced on a map at the end of the second video. Landmarks videoed and discussed included selected property corners, sites of old mining and logging activities (landings, mills, railroads), fencelines, boundaries of USFS and DSL inholdings, Pearson pasture on WMA, sites of previous cultivation, previous research sites, bitterbrush plantings, old cabin, old homesite, artificial and natural salt licks, parking lot for hunters, and sites of particular value to wildlife. In addition, the video provides a basis for landscape comparisons with old slides and photographs, and will provide a baseline for future comparisons.

Montana Department of Fish, Wildlife and Parks. 1991. Draft statewide elk management plan. [Rock Creek EMU is pages 57-59] Wildl. Div., Helena. 150pp.

This document outlines DFWP's draft goals, objectives and strategies for elk management. Statewide the primary emphasis of the DFWP elk management program will be elk habitat. Because of the negative impacts of artificial feeding on soils, vegetation and wildlife populations, DFWP will actively discourage supplemental feeding by public entities or private individuals. DFWP personnel will continue to manage WMAs to: (1) maximize wildlife values and wildlife-related public recreational opportunities, and (2) demonstrate land management practices beneficial to or compatible with management of habitat for the benefit of wildlife (to include rest-rotation livestock grazing systems, cultivation practices and various habitat manipulations such as prescribed burning). DFWP will work with private and public landowners to identify critical elk habitats and highlight parcels having the potential to be enhanced through changes in land management practices and other means. Permanent transects and plots on WMAs will be monitored to assess composition and condition of plant communities in relation to vegetation objectives stated in WMA management plans.

For the Rock Creek Elk Management Unit (EMU), which includes hunting district (HD) 204 and the Threemile WMA, DFWP's goal is to manage the elk population in a healthy condition and cooperate in the management of elk habitats to provide a diversity of elk hunting experiences. Population objectives for the Rock Creek EMU call for an increased elk herd in HD 204 and an observed late winter bull:cow ratio of at least 10:100. Also stated in the EMU plan, DFWP will explore the potential for implementing a rest-rotation grazing system on a portion of

the Threemile WMA and adjacent private lands to the south to improve soils and vegetation on DFWP, and privately owned, elk winter range, and enhance landowner tolerance for elk use of private lands. This document has been reviewed and approved by the Montana Fish, Wildlife and Parks Commission.

Stehn, T. V. 1973. Daily movements and activities of cow elk in the Sapphire Mountains of western Montana during summer and fall. M.S. Thesis, Univ. Montana, Missoula. 66pp.

This elk study occurred between Threemile and Ambrose creeks west of the Sapphire Divide, and between Cinnabar and Cinnamon Bear creeks to the east, during the summer and fall of 1972. The primary objectives were to investigate: (1) movement patterns and distances travelled during 24-hour periods, (2) daily activity patterns and their variability through summer and fall, and (3) movement patterns on the summer range. The Threemile WMA elk population was estimated at 150 animals in 1972. Elk were captured on the WMA in the winter preceding this study by Robert Beall, using corral traps. In the summer of 1972, radio transmitters were functional on 7 cow and 2 bull elk. Between June 26 and November 10, elk tended to move from upper Wheelbarrow and Ambrose creeks to the Sapphire Divide, and then down toward Cinnamon Bear Point in the Rock Creek drainage.

Thompson, M. J., R. E. Henderson, and R. Ortegon. 1991. Do hunters support road closures to address elk security problems? Pages 275-279 in A. G. Christensen, L. J. Lyon, and T. N. Lonner, compilers. Proceedings of elk vulnerability--a symposium. Montana State Univ., Bozeman.

Contrary to the predictions of opponents, systematically collected hunter opinion supported 3 road-closure programs that addressed elk security problems near Missoula, Montana; one was on Threemile WMA. During every weekend day of the 1987 elk hunting season (Oct. 25-Nov. 29), hunter opinion was surveyed concerning a proposal for 1988 to close about 20 road-miles to vehicles yearlong, and to close another 6 road-miles from September 1 to December 1. During the fall special management period, about 5 road-miles would be open on the WMA (excluding the northeastern corner north of Threemile Creek), leaving no location on the WMA >2.5 miles from an open road. Of 153 hunters surveyed in 1987, 56% supported and 22% opposed the proposed road closures. Partly due to hunter input, about 2 open road-miles were added to the program implemented in 1988. The survey was repeated during the 1988-1990 elk hunting seasons. Support for the implemented road-closure program ranged from 65-76% and opposition ranged from 14-16% (160-181 hunters were interviewed). Limited evidence suggested that the Threemile hunting public did not change appreciably as a result

of implementing the road-closure program. The data also suggested that the road closures affected hunters according to their individual preferences and limitations rather than their age or residence.

Thompson, M. J. In Progress. Elk feeding site selection and diets during winter related to spotted knapweed control on the Threemile WMA. Mont. Dep. Fish, Wildl. and Parks, Region 2, Missoula.

This project is in the third year of data collection, with an estimated 2 years remaining. Four track-transects were established in December, 1989, within a 280-acre knapweed infestation (sections 18, 19 and 20) that was treated with picloram the previous spring. Three transects were established in a similar, adjacent untreated area. Each transect was 80 paces long and 6 feet wide, representing 0.05 acres. Elk and deer tracks and feeding craters in the snow were counted on each transect 10 times from December 1989-January 1992. Unfavorable snow conditions precluded more replications. Analysis has not been completed, but initial indications are that the feeding crater data is very sensitive to knapweed distribution. Elk walked through treated and untreated portions of the study area, but stopped to feed almost exclusively in the treated portion. About 100 elk consistently spent portions of the past 3 winters on the study area, an estimated 2-3 times the elk numbers typically attributed to this area before knapweed treatment. In addition, elk fecal samples were collected on the study area, and on traditional winter ranges 0.5-1.5 miles further south (sections 29, 30 and 31) in February, 1990. Fecal analysis by Washington State University suggested a dietary shift from native plants to those representative of the planted grasses in the treatment area.

APPENDIX 1. TRAVEL PLAN BROCHURE

HUNTING, FISHING & TRAPPING

Hunting and fishing are allowed on TWMA from May 15th through November 30th (or through the last day of general deer/elk [gun] season, whichever comes last), subject to DFWP's statewide regulations. Hunting mountain lions is not allowed on TWMA. Since TWMA is closed to hunting until May 15th, spring turkey may not be hunted on TWMA. Spring black bear hunting on TWMA begins May 15th. Consult DFWP hunting and fishing regulations. Trapping furbearers is allowed on TWMA by permit only. Contact R-2 DFWP.

OTHER ACTIVITIES

CAMPFIRES & FIREWOOD--Building small, on-site campfires is allowed. All campfires must be dead out before you leave. Only downed wood (i.e., dead wood on the ground) may be gathered for campfires. You may not cut nor use dead, nor dying, standing wood for any purpose: This is left as habitat and nesting sites for nongame and game animals. No firewood nor wood may be removed from TWMA. CAMPING--Is allowed during times open for public access. Maximum stay is 14 days during any 30-day period.

COMMERCIAL USE--Is not allowed; for example, no outfitting or guiding for hunting or fishing.

GAME RETRIEVAL--If a road is closed to motorized travel, then you may not use a motorized vehicle on that road, nor drive off-road, to retrieve your downed game animal.

GATES--Do not park in such a way as to block gates (whether they are open or closed). Do not park along roads in such a way as to block motorized nor nonmotorized travel.

GROUP USE--Is allowed, but a permit is required for groups of 30 or more people. Contact R-2 DFWP. TRASH--"Pack-in, pack-out" trash policy. No litter. QUESTIONS?--Call R-2 DFWP during office hours (M-F, 8 a.m.-5 p.m.).

The Montana Department of Fish, Wildlife and Parks enforces federal funds and prohibits discrimination on the basis of race, color, sex, age, national origin, or handicap. For information or complaints regarding discrimination, contact the personnel office of the Montana Department of Fish, Wildlife and Parks, 1429 E. Sixth Avenue, Helena, MT 59620, (406) 444-2333; the Montana Human Rights Commission, 1236 E. Sixth Avenue, Helena, MT 59620, (800) 542-0807; or the Office of Equal Opportunity, U.S. Department of the Interior, Washington, DC 20740.

HOW TO GET TO TWMA

From Missoula, take U.S. Highway 93 south: At Florence, turn left (east) onto the East Side Highway. Proceed 6.1 miles to the turnoff to Threemile Creek Road; turn left (east) onto Threemile Road. Proceed east 3.3 miles and turn left (north) after Lone Rock School. Continue 4.1 miles northeasterly (passing Brown Valley Ranch) to where the road crosses Threemile Creek; immediately after this, take the right-hand fork of the road. Proceed east for 0.4 miles and take the left-hand fork of the road. Proceed easterly for 0.9 miles to the main entrance of TWMA.

ACCESS

PUBLIC ACCESS--TWMA is open to public access starting May 15th and continuing through November 30th (or through the last day of general deer/elk [gun] season, whichever comes last). TWMA is closed for the winter to all public access beginning December 1st (or the day following the last day of deer/elk [gun] season, whichever comes last) and continuing through May 14th. Exception: The area north of, and including, U.S. Forest Service Road #640 in northeastern TWMA is open year-round.

MOTORIZED TRAVEL--Roads not designated as closed are open to motorized travel during the time period that TWMA is open to public access. See enclosed map. Driving a motorized vehicle off roads or on closed roads is not allowed.

SPECIAL MOTORIZED VEHICLE RESTRICTION--The operation of conventional passenger vehicles which are greater than 50 inches in width and which meet the requirements of appropriate State law for registration and licensing (in order to travel on public highways) is allowed on TWMA. But, the operation of any motorized vehicle 50 inches or less in width is prohibited on TWMA; this includes (but is not limited to) 2-, 3- and 4-wheeled ATVs, motorcycles, trail-bikes and snowmobiles. Exception: Motorized vehicle traffic is not restricted on U.S. Forest Routes #640 and 1334 which pass through the northeast corner of TWMA.

NONMOTORIZED TRAVEL--Is allowed anywhere on TWMA during times it is open to public access.



Montana Department of Fish, Wildlife & Parks

THREEMILE

WILDLIFE MANAGEMENT AREA

TRAVEL PLAN

Revised June 1992

The Threemile Wildlife Management Area (TWMA) is managed by Region 2 (R-2) of the Montana Department of Fish, Wildlife and Parks (DFWP) to provide important winter range for elk and deer, as well as compatible public recreation. Located in northeast Ravalli County, TWMA is in deer/elk/black bear Hunting District 204. TWMA includes about 9.5 square miles owned by DFWP, 120 acres owned by the U.S. Forest Service, and 40 acres of state school trust land (Montana Department of State Lands).

REPORT VIOLATIONS--Evenings, weekends and holidays, call 9-1-1. During office hours call R-2 DFWP at (406) 542-5500 or call 1-800-TIP-MONT (1-800-847-6668).

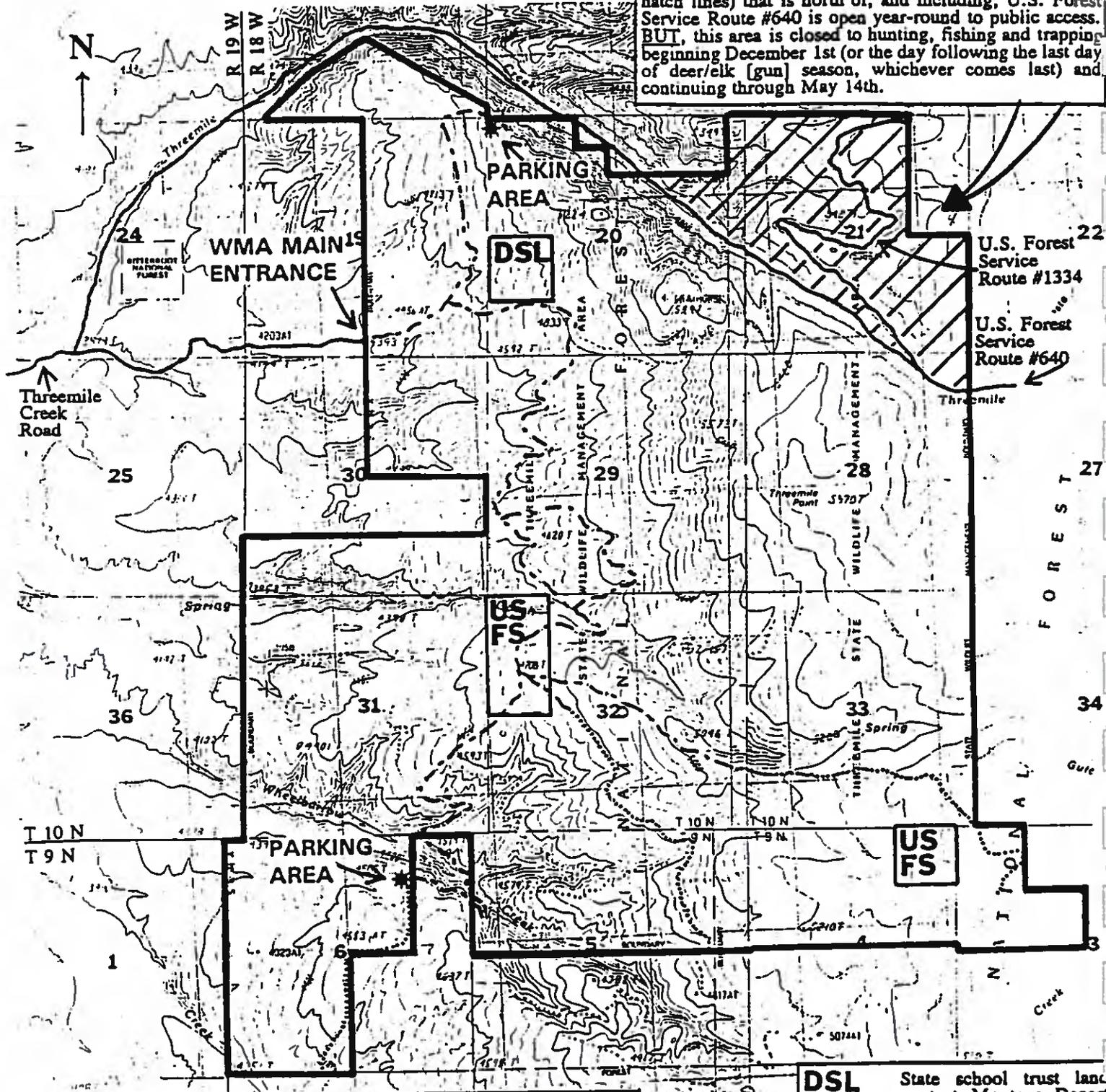
**Region 2 Office
3201 Spurgin Road
Missoula, MT 59801
(406) 542-5500**

THREEMILE WILDLIFE MANAGEMENT AREA: TRAVEL PLAN & REGULATIONS

Wheelbarrow Creek Threemile fish passage

012-2020

Within TWMA boundaries, the area (designated by the hatch lines) that is north of, and including, U.S. Forest Service Route #640 is open year-round to public access. **BUT**, this area is closed to hunting, fishing and trapping beginning December 1st (or the day following the last day of deer/elk [gun] season, whichever comes last) and continuing through May 14th.



ROADS OPEN TO MOTORIZED TRAVEL

-  Open year-round.
-  Open May 15th through November 30th (or through the last day of general deer/elk [gun] season, whichever comes last).
-  Open May 15th through the day before the opening day of upland game bird season (i.e., closes beginning with the first day of upland game bird season—usually an early September date).

DSL State school trust land, contact Montana Department of State Lands for information.

USFS USDA Bitterroot National Forest.

U.S. Geological Survey maps used:
 Grayhorse Creek quadrangle (1989 Provisional Edition) and
 Cleveland Mountain quadrangle (1989 Provisional Edition).
 Also see, USDA Bitterroot National Forest map (current edition)

APPENDIX 2. 1971 MANAGEMENT PLAN

APPENDIX

MANAGEMENT PLAN FOR THE BITTERROOT GAME RANGE

By Claude Smith
Game Range Manager
December 6, 1971

I. Introduction

The Bitter Root Valley of west-central Montana is approximately 95 miles long and a maximum of about 10 miles wide. It is a beautiful intermountain area, with a relatively moderate climate. Before the advent of the white man, members of the Salish Indian Nation made this valley their home. Though a friendly and peaceful tribe, the Salish, or Flatheads, were moved from the valley to a reservation on the shores of Flathead Lake shortly after Montana became a state. The first white settlement was in 1841, when Father Pierre DeSmet, a Jesuit priest, established St. Mary's Mission near the present site of Stevensville. Cattle were first introduced in 1842 by Father DeSmet at the Mission. Purchased by Major Owen in 1850, the Mission became Ft. Owen and the first ranch in the valley. Owen was a major trading post, not only in western Montana but for much of the Northwest. All kinds of goods, including food, clothing, equipment, and horses, were traded by Owen and others to emigrants traveling westward.

Human habitation throughout the valley increased slowly following the establishment of St. Mary's Mission, but less than a year after the construction of Mullan's Road from Ft. Benton, Montana to Walla Walla, Washington in 1861, the discovery of gold brought many prospectors, followed by settlers, to western Montana. Mining ventures for gold, silver, lead, copper, and zinc were the origin of settlements near Hughes Creek on the upper West Fork of the Bitter Root River and near Kootenai and Eightmile Creeks on the main Bitter Root River. Mining and settlement in turn led to a strong demand for agriculture products. The grasslands of the valley were ideally suited to ranching, and very soon supported an abundance of livestock. There are no specific records of the numbers of cattle, sheep, and horses in the Bitter Root Valley through the 1870's and 1880's, but it seems reasonable to assume that their increase paralleled the expansion of livestock numbers in much of the West, where the last open range was fully stocked by 1890 to 1900.

Approved by: K. G. Janson
December 14, 1971

The expeditions of Lewis & Clark in 1805-06 and Alexander Ross in 1823-24 recorded that deer, elk and bighorn sheep were abundant in the Bitter Root Valley. However, Lewis and Clark found game animals scarce along their travel route through the heavily forested Bitter Root Mountains.

In 1880, elk were still moderately abundant in the East Fork of the Bitter Root drainage, according to the late Bertie Lord, who homesteaded there. During the period 1870-1910, the Bitter Root Valley was rapidly settled, and there were few hunting restrictions. By 1902, Than Wilkerson, the first Forest Ranger in the West Fork, estimated there were only seven elk left in the East Fork.

Elk remained scarce in the Bitter Root until total closure of the hunting season in 1913. Recovery of the population was assisted by a transplant of 60 elk from Yellowstone National Park in 1911. These were transported by train, and released in the Burnt Fork and Gird Creek drainages on the east side of the Valley.

Under total protection, elk numbers increased. Organized game counts were begun by the Forest Service in 1922. At that time a count of 175 elk was made by a ground crew in the East Fork. Counts were made annually until 1931, when 250 elk were counted.

Hunting seasons were re-opened in portions of the Bitter Root in 1936 for bull elk, and in 1927 for either sex elk. Seasons for either sex elk have been held each year since.

The Skalkaho Game Preserve was established in 1925. It originally included 113 square miles, and extended south of the Skalkaho road. It has since been reduced and now embraces approximately 30 square miles all north of the Skalkaho road. In view of the upward trend of game numbers, creation of this game preserve was not only pointless, but was detrimental to range resources.

In 1935 the Forest Service reduced the numbers of cattle and sheep, and established grazing closures, in the East Fork and Skalkaho Creek for the benefit of game.

Winter game range studies were conducted by the Forest Service during the period 1935-37. Portions of the East Fork were found to be over-used by both livestock and game, and much of the browse was dead.

Elk damage to haystacks was reported to have occurred in the Sula Basin during the rather severe 1935-36 winter and again during the mild 1936-37 winter. Presumably such damage occurred nearly every winter. A Fish and Game Department report recorded rancher complaints of elk damage to haystacks and range in the Sula Basin in 1942 and recommended that elk numbers in the East Fork and Rye Creek be reduced from an estimated 850 to 650.

The first recorded aerial count in the Bitter Root was made in 1947, and 130 elk were counted in the East Fork. As counting techniques improved, and the elk population increased, more elk were seen during aerial counts (see table 3). The greatest numbers were seen in 1958, 1965 and 1966, although the peak population probably occurred earlier. On the "West side" the peak population may have occurred as early as 1949 when Department observers estimated nearly 1,000 elk between Lost Creek and Trapper Creek. Because of serious damage to private property, the hunting season was opened from October 1 to December 31, 1949 and approximately 500 elk were taken from the area. In spite of rather liberal hunting seasons, elk continued to increase and probably reached a peak in the entire Bitter Root unit about 1955.

Range depletion progressed to the point where deer and elk died of starvation during the severe 1955-56 winter. Malnutrition was found to be a contributing cause of death of seven of nine deer carcasses, and 14 of 17 elk carcasses examined by Department personnel during that winter.

Combined heavy use of forage by game and livestock caused serious range and forest problems and necessitated reductions in both game and livestock numbers. Between 1945 and 1961 sheep grazing was eliminated from the Montana portion of the

Bitter Root National Forest. During the same period grazing use by cattle and horses was reduced 39%. Between 1958 and 1963 reduction of deer and elk populations was accomplished by liberal seasons.

As a result of lighter use by livestock and game, range forage conditions improved between 1955 and 1963. Since 1963 game harvests have been curtailed by restrictive regulations and mild fall weather. Elk populations have increased and can be expected to cause serious range and depredation problems soon, if adequate harvests are not achieved. Deer populations appear to be responding slowly, if at all, to lighter harvests. This is believed to be the result of competition with elk for a scanty and declining browse forage supply.

Management Programs

The first approach toward a definite management goal was made in 1941, when the Fish and Game Department made an agreement with landowners in the East Fork to maintain approximately 650 elk in the East Fork herd.

In 1953 the U. S. Forest Service and the Montana Fish and Game Department drew up a cooperative wildlife plan for the Sula Ranger District. This plan recognized the following problems: 1) over-use of browse by big game, 2) increasing populations of elk and deer, 3) elk nuisance to ranchers during severe winters, 4) damage to conifer reproduction by deer, 5) competition between elk and cattle on elk winter ranges, 6) and deterioration of grassland on dual-use ranges.

Objectives to be attained which would affect game populations were: 1) timber harvest by small clear cuttings to improve game forage, 2) leave small uncut patches of timber for game cover where needed, 3) seed skid roads to provide wildlife forage, 4) urge control of the deer population by hunting to ensure survival of tree reproduction and palatable browse, 5) adjust game or domestic stock use as indicated by range surveys on vital winter range areas.

To help achieve these objectives a series of exclosures was built. These were

assigned to conifer survival in relation to big game use, and to show degree of range use by game and livestock. A cooperative program of measuring big game winter forage conditions, trend and utilization was also begun. These surveys have been continued to the present time.

In response to the need for a greater big game harvest, elk seasons were made more liberal between 1953 and 1963. Season regulations were often on a desired harvest basis, and the harvest was regulated by a checking station quota. Mild fall weather in 1962 and 1963 resulted in a low rate of harvest and long seasons. Low hunting success triggered public opposition to extended seasons. As a result a management plan was formulated and adopted by the Commission which eliminated extended or "open-end" seasons. Other provisions were:

1. Early hunting in districts 24 and 25.
2. General season opening in district 26.
3. Opening date of Area 27 to coincide with Rock Creek and Big Hole districts.
4. Harvest quotas for districts 25 and 27 based on average harvest figures, aerial counts, estimated calf production and trend in range conditions.
5. General season closing dates in all Bitter Root areas.
6. Re-opening the season on a permit basis if harvest quotas were not attained during the scheduled season.

Proposed harvest quotas were not attained in the East Fork area in 1965, but continued public opposition prevented the re-opening of the season. Since then, early either sex seasons have been eliminated, and there has been a return to "open-end" seasons in the upper Bitter Root.

Land Ownership Problems

Most of the land in the Bitter Root drainage is in public ownership. National Forest covers 71 percent of the area. However, 57 percent of the big game winter range lies on private land. This leads to conflict between wintering game populations and ranching activities. A common complaint is winter elk damage to haystacks. This situation becomes serious whenever a severe winter follows a year,

or a period of years, of inadequate harvest by hunting. Haystack damage by elk assumed certain proportions during the 1948-49 and 1955-56 winters, and has occurred in varying degrees in some areas nearly every winter since the 1930's.

A program of land acquisition for winter elk range to help solve these conflicts, and to ensure winter forage for elk, was planned by the Fish and Game Department during the period 1957-60.

Since then, two areas were acquired, neither of them in the original plans, but both important as elk winter range. These are the Calf Creek and Threemile segments of the Bitterroot Game Range. The Calf Creek segment was acquired in 1960. Originally there were 2800 acres, but the size has been reduced to about 2100 acres through trade of surplus farm land and timber land for range land on the Threemile Game Range. One portion of the Threemile Game Range (2300 acres) was acquired in 1967, and another portion (3400 acres) in 1968. Approximately 360 acres was obtained from the Forest Service by trade in 1971. Thus there is a total of nearly 6100 acres in the Threemile segment. Further acquisition of private land lying south of the Department land on both game range areas would be desirable.

From 50 to 100 elk have wintered on the Calf Creek segment, and 75 to 125 on the Threemile segment. These numbers can probably be increased through manipulation of hunting regulations as the ranges are developed. Some elk apparently are also summer residents on these game ranges.

II. Description of Area

A. Physical Description

The Calf Creek segment of the Bitterroot Game Range is located in township T6N, R19W, Ravalli County, Montana. The main stream in the area is Willow Creek, with Butterfly, Eastman and Stuart Creeks flowing into Willow Creek.

The Game Range is approximately eight miles northeast of Hamilton, Montana,

and seven miles east of the Bitterroot River.

The Threemile segment of the Bitterroot Game Range is located in township T6N, R18W, Ravalli County, Montana, approximately ten miles northeast of Stevensville, Montana. Within the area, Threemile Creek, Wheelbarrow Creek, Grayhorse Creek, and Ambrose Creek flow towards the Bitterroot River, seven miles to the west.

Ownership

The Calf Creek segment consists of approximately 2000 acres of Fish and Game-owned land, and 160 acres of State-owned leased land. The north, west and south sides of the game range are bordered by private land, and the east side is bordered by Federal land (National Forest).

There are approximately 6000 acres of Department-owned land in the Threemile Game Range and 120 acres of National Forest. There are also 120 acres of State land not under Department control inside the Game Range boundary.

The ownership surrounding the ^{Dept} Game land is both private and Federal. On the north, west, and south sides of the area, the land is privately owned, and ranching the dominant use. On the east border, the land is owned by Burlington Northern and the Federal Government (National Forest) in alternate sections. Access to the management area is across private land with an easement granted by landowners on a vocal basis only.

Topography

Both game management units lie in a rolling, bench land situation. Elevations range from 4,000 feet on the lower benches to 5,500 feet at Threemile point. Numerous finger ridges slope gradually towards the southwest, with steep north slopes, and medium to gentle south slopes.

Climate

Climatological data are available from a weather station located in Hamilton, Montana at an elevation of 3,529 feet. Sixty-six years of tempera-

ture records: (1916-1971) indicate a mean annual temperature of 46.3°F at Hamilton. January is the coldest month, with an average temperature of 24.5°F, while July is the warmest month with an average temperature of 68.2°F. The average frost-free period of 126 days normally extends from the middle of May to the middle of September.

The mean annual precipitation at Hamilton is 12.20 inches. Normally about one-third of the total precipitation falls during the months of May and June. July and August are the driest months with an average of 0.79 and 0.62 inches of precipitation respectively. The temperatures at the game range segments would be somewhat lower, and the precipitation higher, than in Hamilton due to the increase in altitudes.

Snow depths, on the range segments, rarely exceed twelve inches. Many of the south facing slopes are free of snow for much of the winter, as the snow usually melts within a few days after each storm.

Geology and Soils

The following description is taken from a soil survey of the Bitter Root Valley (Bourne et al. 1959): The soils are chiefly of the Gallatin series. Parts of the hills are weathered granitic outwash like that of the high fans of the west side of the main valley, and were formed early in the glacial epoch (Pleistocene); other parts are Tertiary sandstone and silts; and the remainder is weathered granite bedrock. Wind-deposited silts and sands cover some areas. The principal upland soils are members of the Lick, Ravalli, Bromlee, Duffy, and Stecum series, and the Sula Loam variant.

In the Sapphire Range the underlying sedimentary rocks are quartzites, hard sandstones, argillites, and limestones, all of the pre-Cambrian Belt series. Soils on these formations are primarily types and variants of the Gird, Haccke, Cooney, Skaggs, Teton, Castner, Laporte, Trapper, and Holloway series. Igneous

intrusion, being to the light-colored quartz monzonite family of granites and contain soils of the Bromlee, Duffy, Ravalli, Shook, Stocum, and Woodrock series.

B. Wildlife Habitat

1. Cover

The vegetation is characterized by open grasslands, stands of ponderosa pine (Pinus ponderosa) and Douglas fir (Pseudotsuga menziesii) timber.

The grassland areas are similar to the Palouse Prairie type described by Daubenmire (1943). The dominant plant species on approximately half of the grassland areas are Idaho fescue (Festuca idahoensis) and bluebunch wheatgrass (Arrhenon spicatum). The dominant plant species on the other half of the area are downy chess (Bromus tectorum) and Sandberg bluegrass (Poa secunda). The areas dominated by downy chess and Sandberg bluegrass are most likely seral stages of the bunchgrass type, created by over-grazing, or other disturbance.

The forested areas that occur on south and west slopes or on rocky areas usually are open-grown stands of ponderosa pine with an understory of bluebunch wheatgrass. Those forested areas that occur on north or east slopes are usually fairly dense stands of Douglas fir and ponderosa pine with understories characterized by pinegrass (Calamagrostis rubescens), Kentucky bluegrass (Poa pratensis), and snowberry (Symphoricarpos albus).

A more complete list of plants found on the Bitterroot Game Range is shown in the appendix.

2. Food

Grass and grass-like food plants (Idaho fescue, rough fescue, bluebunch wheatgrass, crested wheatgrass, alfalfa, etc.) are abundant on both segments of the Bitterroot Game Range. Browse species (Ceanothus, service

A partial list of non-game birds found in the area consists of the following species:

- Meadowlark
- Red-wing black bird
- Pileated woodpecker
- Robin
- Mountain bluebird
- Raven
- Black-chinned hummingbird
- Great horned owl
- Screech owl
- Sharp-shinned hawk
- White-breasted nuthatch

Small mammals known to occur on the game range areas include the following:

- Vagrant shrew
- Little brown bat
- Long-eared bat
- Columbian ground squirrel
- Chipmunk
- Red squirrel
- Northern pocket gopher
- Deer mouse
- Bushy-tailed woodrat
- Meadow vole
- Western jumping mouse
- Porcupine
- Snowshoe hare
- Mountain cottontail
- Whitetailed jack rabbit

2. Population Status

	Threemile	Calf Creek
Elk	common (seasonal)	common (seasonal)
White-tailed deer	common (seasonal)	scarce
Mule deer	common (seasonal)	common (seasonal)
Ruffed grouse	common	scarce
Spruce grouse	scarce	scarce
Blue grouse	common	common

Some migration patterns are noticeable for all three big game animals in the use of both segments of the Bitterroot Game Range. Elk and mule deer utilize the area during the winter as a winter range. Occurrence of white-tailed deer during this period is rare. During the summer,

berry, blueberry, rose, etc.), are in medium supply, and in fair to good condition. Some experimental planting of browse plants has occurred on both segments, but survival of these has been poor. Species tried are caragana, Russian olive, skunkbush sumac, bitterbrush, Rocky Mountain juniper, evergreen ceanothus and sandcherry. Reseeding of former dry land wheat ground, badly infested with cheatgrass, was accomplished with a mixture of big bluegrass, crested wheatgrass, dryland alfalfa, bluebunch wheatgrass and yellow sweet clover.

3. Water

There are no large bodies of water on either segment of the Game Range. However, both segments have several small, permanent streams that provide an ample supply of water for game animals.

C. Wildlife Resource

1. Species Present

Game species found on or in the vicinity of the Bitterroot Game Range are:

- Black bear
- Mule deer
- Elk
- Moose
- White-tailed deer
- Mountain lion
- Ruffed grouse
- Spruce grouse
- Blue grouse

Furbearers and small predatory animals found in the vicinity are:

- Shorttailed weasel
- Longtailed weasel
- Marten
- Mink
- Wolverine
- Badger
- Striped skunk
- Lynx
- Bobcat
- Coyote
- Red fox

- Ursus americana
- Odocoileus hemionus
- Cervus canadensis
- Alces alces
- Odocoileus varginianus
- Felis concolor
- Panthera umbellus
- Canachites canadensis
- Dendragapus obscurus
- Mustela ermineo
- Mustela frenata
- Martes americana
- Mustela vison
- Gold luscus
- Taxidea taxus
- Mephitis mephitis
- Lynx canadensis
- L. rufus
- Canis latrans
- Vulpes fulva

observations of white-tail and mule deer are frequent, with some of the mule deer population and most of the elk migrating to higher elevations.

3. Game Harvest

Checking station control of the two areas is insufficient to provide any specific data concerning game harvest on the game ranges. A current study on the Threemile portion will provide us with more detailed data on that area, but at this time the data are not available.

III. Developments to Date

Most of the development effort has been directed towards improving habitat for big game animals. Considerable new fencing has been built, and old fences repaired, to control livestock grazing and reserve forage for big game. Old road beds and disturbed areas resulting from recent logging activity have been planted with grass and legumes for erosion control. Also limited plantings of browse species have been attempted on both segments. Herbaceous vegetation was reseeded on former dry land wheat ground with relatively good success. The other primary management activity is maintenance of the Game Range, which involves fence and road repair, removal of trespass cattle, fire surveillance, and headquarters improvement.

IV. Game Management Area Plan

A. Objectives:

The primary objective of the Bitterroot Game Range, is to provide winter habitat for elk and deer. Secondary objectives are to provide suitable habitat for the propagation of other game and non-game species, to provide a seasonal recreational site for the public, and to provide an area and facilities for game and habitat research.

B. Methods:

Grazing management is the primary tool utilized on the Bitterroot Game

management. Control of livestock grazing is resulting in recovery of the ranges from past overgrazing. Some browse and grass plantings have been made for range improvements. Thinning or clearing of conifers may be needed to maintain clearings. Spring burning of residual intermediate wheatgrass will be attempted to increase utilization of this species on old reseeded areas.

There are no hunting restrictions on the Bitterroot Game Range. Rather, it is managed, during the harvest season, in conjunction with the general game regulations for the Bitterroot Valley. Some restriction of hunting may be necessary to increase the elk population to the range carrying capacity, particularly on the Threemile segment.

During the winter months, December 1 to June 1, the Game Range is closed to unauthorized vehicles, although foot travel is allowed. This is done to reduce possible animal harassment during the winter period.

Limited recreational facilities will be developed and maintained. These will consist chiefly of picnic sites on Threemile Creek and Stuart Creek.

Winter and spring trapping and marking of elk and possibly deer will be carried out in connection with game movement and habitat studies.

Table 1: List of the plant species found on the Bitterroot Game Range

SCIENTIFIC NAME	COMMON NAME
<u>Grasses and Grasslike Plants</u>	
<i>Agropyron repens</i> (L.) Beauv.	quackgrass
<i>Agropyron smithii</i> Rydb.	western wheatgrass
<i>Agropyron spicatum</i> (Pursh.) Scribn. & Smith	bluebunch wheatgrass
<i>Agrostis alba</i> L.	redtop
<i>Aristida longiseta</i> Steud.	red three-awn
<i>Bromus inermis</i> Leyss.	smooth brome
<i>Bromus marianus</i> Nees	mountain brome
<i>Bromus tectorum</i> L.	downy chess
<i>Calamagrostis rubescens</i> Buckl.	pinegrass
<i>Carex filiflora</i> Nutt.	threadleaf sedge
<i>Carex Geyeri</i> Boott.	elk sedge
<i>Carex</i> spp.	sedge
<i>Danthonia unispicata</i> Munro	one-spike oatgrass
<i>Deschampsia elongata</i> (Hook.) Munro.	slender hairgrass
<i>Elymus cinereus</i> Scribn. & Merr.	inland giant wild-rye
<i>Festuca idahoensis</i> Elmer.	Idaho fescue
<i>Festuca scabrella</i> Torr.	rough fescue
<i>Hordeum jubatum</i> L.	foxtail barley
<i>Koeleria cristata</i> (L.) Pers.	junegrass
<i>Luzula parviflora</i> (Thunb.) Desv.	wood-rush
<i>Phleum pratense</i> L.	timothy
<i>Poa compressa</i> L.	Canada bluegrass
<i>Poa pratensis</i> L.	Kentucky bluegrass
<i>Poa secunda</i> Presl.	Sandberg bluegrass
<i>Stipa comata</i> Trin. & Rupr.	needle-and-thread
<i>Stipa richardsoni</i> Link.	Richardson needlegrass
<i>Stipa williamsii</i> Scribn.	Williams needlegrass
<u>Forbs</u>	
<i>Achillea millefolium</i> L.	yarrow
<i>Allium cernuum</i> Roth.	nodding onion
<i>Anemone patens</i> L.	paequa flower
<i>Antennaria parvifolia</i> Nutt.	small-leaf pussytoes
<i>Antennaria racemosa</i> Hook.	raceme pussytoes
<i>Apocynum androsaemifolium</i> L.	spreading dogbane
<i>Arenaria holboellii</i> Horn.	holboell rockcress
<i>Arenaria congesta</i> Nutt.	ballhead sandwort
<i>Arnica cordifolia</i> Hook.	heartleaf arnica
<i>Arnica fulgens</i> Pursh.	arnica
<i>Artemisia dracunculus</i> L.	false-tarragon sagewort
<i>Artemisia ludoviciana</i> Nutt.	cudweed sagewort
<u>Forbs (continued)</u>	
<i>Aster canescens</i> Pursh.	Hoary aster
<i>Aster</i> spp.	aster
<i>Astragalus inflexus</i> Dougl.	milkweetch
<i>Balsamorhiza sagittata</i> (Pursh.) Nutt.	arrowleaf balsamroot
<i>Brodiaea grandiflora</i> (Lindl.) Macbr.	brodiaea
<i>Calypso bulbosa</i> (L.) Oakes.	fairy slipper
<i>Camassia quamash</i> (Pursh.) Greene.	camas
<i>Campanula rotundifolia</i> L.	roundleaf harebell
<i>Castilleja</i> spp.	indian paintbrush
<i>Centaurea sculosa</i> Lam.	spotted knapweed
<i>Ceratium arvense</i> L.	field chickweed
<i>Chrysopsis villosa</i> (Pursh.) Nutt.	golden-aster
<i>Cirsium arvense</i> (L.) Scop.	Canada thistle
<i>Cirsium undulatum</i> (Nutt.) Spreng.	wavyleaf thistle
<i>Cirsium vulgare</i> (Sav.) A-S.	bull thistle
<i>Collinsia parviflora</i> Lindl.	small-flowered blue-eyed mary
<i>Cryptantha bradburiana</i> Payson.	miners candle
<i>Delphinium bicolor</i> Nutt.	low larkspur
<i>Dodecatheon pauciflorum</i> (Durand.) Greene.	southern shootingstar
<i>Draba</i> spp.	draba
<i>Erigeron compositus</i> Pursh.	fernleaf fleabane
<i>Erigeron divergens</i> T & G.	spreading fleabane
<i>Eriogonum umbellatum</i> Torr.	sulfur eriogonum
<i>Erodium cicutarium</i> (L.) L'Her.	alfilaria
<i>Erythronium grandiflorum</i> Pursh.	dogtooth lily
<i>Fragaria virginiana</i> Duch.	strawberry
<i>Fritillaria pudica</i> (Pursh.) Spreng.	yellow bell
<i>Gaillardia aristata</i> Pursh.	Gaillardia
<i>Galium boreale</i> L.	northern bedstraw
<i>Geranium viscosissimum</i> Fisch & Mey.	sticky geranium
<i>Geum triflorum</i> Pursh.	prairiesmoke
<i>Glycyrrhiza lepidota</i> (Nutt.) Pursh.	wild licorice
<i>Grindelia squarrosa</i> (Pursh.) Donal.	curcup gumweed
<i>Heuchera cylindrica</i> Dougl.	roundleaved allumroot
<i>Hieracium albertium</i> Ferr.	hawkweed
<i>Lesquerella</i> spp.	bladderpod
<i>Lewisia rediviva</i> Pursh.	bitterroot
<i>Linaria vulgaris</i> Hill.	butter and eggs
<i>Lithophragma parviflora</i> (Hook.) Nutt.	smallflower woodlandstar
<i>Lithospermum tuderale</i> Dougl.	western growwell
<i>Lomatium ambiguum</i> (Nutt.) C & R.	wyeth biscuitroot
<i>Lomatium cous</i> (Wats.) C & R.	mountain lomatium
<i>Lupinus caudatus</i> Kell.	spurred lupine
<i>Medicago lupulina</i> L.	black medic

SCIENTIFIC NAME COMMON NAME

Shrubs and Trees (continued)
 Juniperus communis L. common juniper
 Juniperus scopulorum Sarg. rocky mountain juniper
 Larix occidentalis Nutt. western larch
 Ledodactylon pungens (Torr.) Rydb. granite gilia
 Lonicera utahensis Wats. Utah honeysuckle
 Physocarpus malvaceus (Greene.) mockorange
 Kuntze. ninebark
 Picea engelmanni Engelmann spruce
 Pinus contorta Dougl. lodgepole pine
 Pinus ponderosa Laws. ponderosa pine
 Populus spp. cottonwood
 Prunus virginiana L. chokecherry
 Pseudotsuga menziesii Mirb. Douglas fir
 Purshia tridentata (Pursh.) DC. antelope bitterbrush
 Ribes cereum Dougl. squaw currant
 Ribes viscosissimum Pursh. sticky currant
 Rosa woodsii Lindl. blue elderberry
 Sambucus coerulea Raf. white spirea
 Spiraea betulifolia Pall. common snowberry
 Symphoricarpos albus (L.) Blake
 Ceanothus velutinus ceanothus

SCIENTIFIC NAME COMMON NAME

Forbs (continued)
 Mertensia oblongifolia (Nutt.) G. Don. oblongleaf bluebell
 Opuntia polyacantha Haw. plains pricklypear
 Orthocarpus tenuifolius thin-leaved orthocarpus
 Benth.
 Penstemon albertinus Greene. Alberta penstemon
 Penstemon vilcoxii Rydb. Wilcox penstemon
 Phacelia heterophylla Pursh. virgate phacelia
 Phacelia linearis (Pursh.) Holz. linear-leaf phacelia
 Plantago Purshii R & S. woolly plantain
 Polemonium viscosum Nutt. skunk polemonium
 Polygomon douglasii Greene. Douglas knotweed
 Potentilla glandulosa Lindl. gland cinquefoil
 Potentilla gracilis Dougl. northwest cinquefoil
 Ranunculus glaberrimus Hook. sagebrush buttercup
 Sedum stenoetaleum Pursh. yellow stonecrop
 Senecio canus Hook. woolly groundsel
 Goldenrod
 Solidago missouriensis Nutt. common snoutistle
 Sonchus oleraceus L. co-mon dandelion
 Taraxicum officinale Weber western meadow rue
 Thalictrum occidentale Gray. toensendia
 Toensendia hookeri Beaman. common saisify
 Tragopogon dubius Scop. white clover
 Trifolium repens L. wake-robin
 Trillium uvatum Pursh. flannel mullein
 Verbascum thapsus L. Nuttall violet
 Viola nuttallii Pursh. Northern blue violet
 Viola septentrionalis Greene. cocklebur
 Xanthium strumarium L. mountain death camas
 Zygadenus elgens Pursh.

Shrubs and Trees
 Acer glabrum Torr. rocky mountain maple
 Alnus tenuifolia Nutt. thinleaf alder
 Amelanchier alnifolia Nutt. western serviceberry
 Arctostaphylos uva-ursi (L.) Spreng. kinkinnick
 Artemisia frigida Willd. fringed sagewort
 Artemisia tridentata Nutt. big sagebrush
 Berberis repens Lindl. Oregon grape
 Cercocarpus ledifolius Nutt. curlleaf mountain mahogany
 Chrysothamnus nauseosus (Pall.) Britt. rubber rabbitbrush
 Chrysothamnus viscidiflorus (Hook.) green rabbitbrush
 Nutt.
 Clematis columbiana (Nutt.) T & G. rock clematis
 Cornus stolonifera Michx. red dogwood
 Holidiscus discolor (Pursh.) Max. mountain spray

Shrubs and Trees
 Juniperus communis L. common juniper
 Juniperus scopulorum Sarg. rocky mountain juniper
 Larix occidentalis Nutt. western larch
 Ledodactylon pungens (Torr.) Rydb. granite gilia
 Lonicera utahensis Wats. Utah honeysuckle
 Physocarpus malvaceus (Greene.) mockorange
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 Pinus ponderosa Laws. ponderosa pine
 Populus spp. cottonwood
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 Sambucus coerulea Raf. white spirea
 Spiraea betulifolia Pall. common snowberry
 Symphoricarpos albus (L.) Blake
 Ceanothus velutinus ceanothus

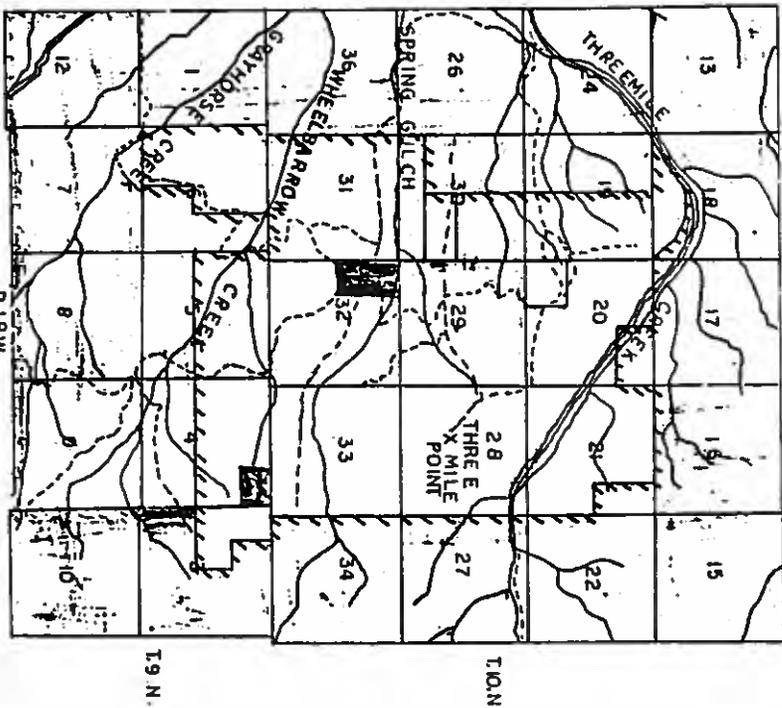
Maps 1, 2, 3. Ownership and improvements - Bitterroot Game Range, Ravalli County, Montana.

- Legend:
- Fish and Game Land
 - Other State Land
 - Federal Land
 - Private Land
 - Burlington Northern
 - Improved Road
 - Unimproved Road
 - Fence
 - Building
 - Headquarters
 - Cattle guard
 - Culvert
 - Planting

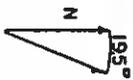


BITTERROOT GAME RANGE
THREEMILE SEGMENT

Map 1



LEGEND
IMPROVED ROAD
UNIMPROVED ROAD

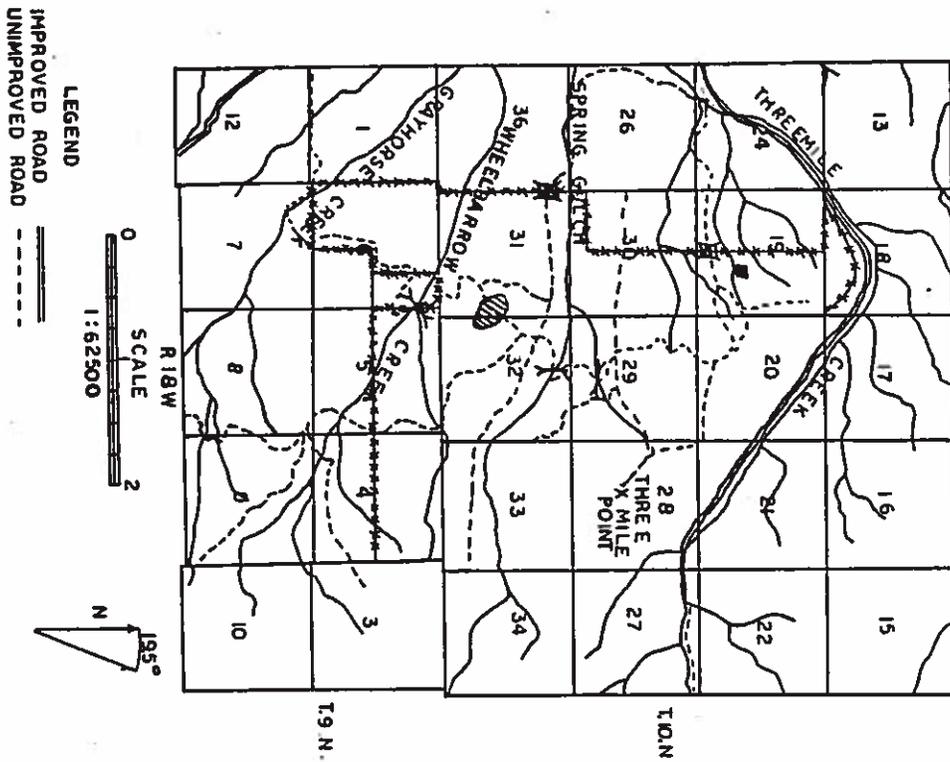


- LEGEND
- Fish and Game Land
 - State
 - Federal
 - Private
 - Burlington Northern
 - Other State Land
 - Federal Land
 - Private Land
 - Burlington Northern
 - Improved Road
 - Unimproved Road

CLAUDE SMITH

BITTERROOT GAME RANGE
THREEMILE SEGMENT

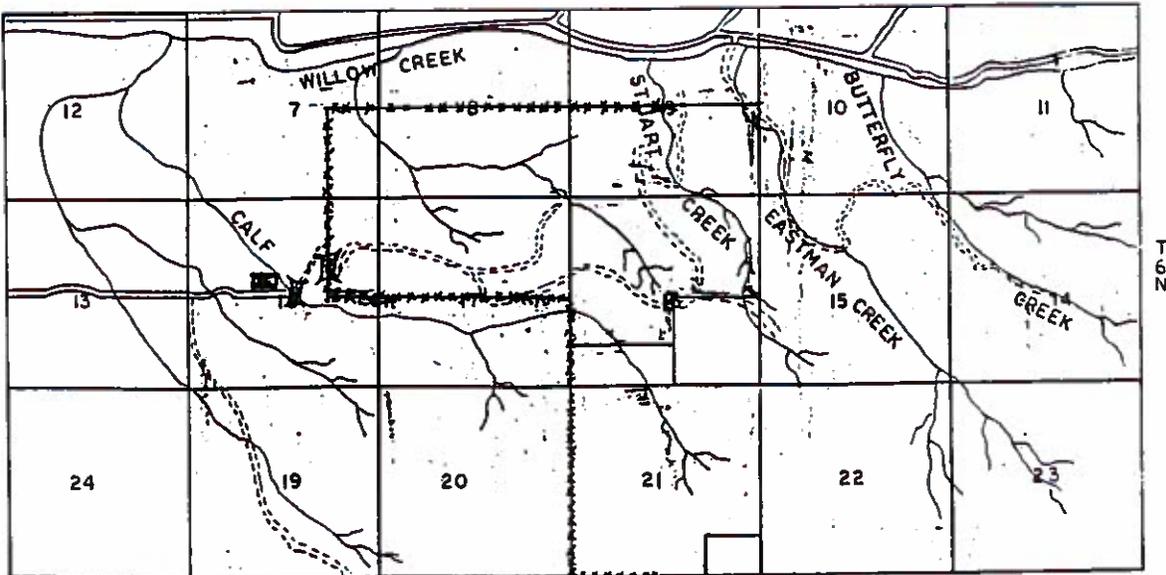
Map 1



CLAUDE SMITH

Map 3

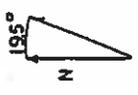
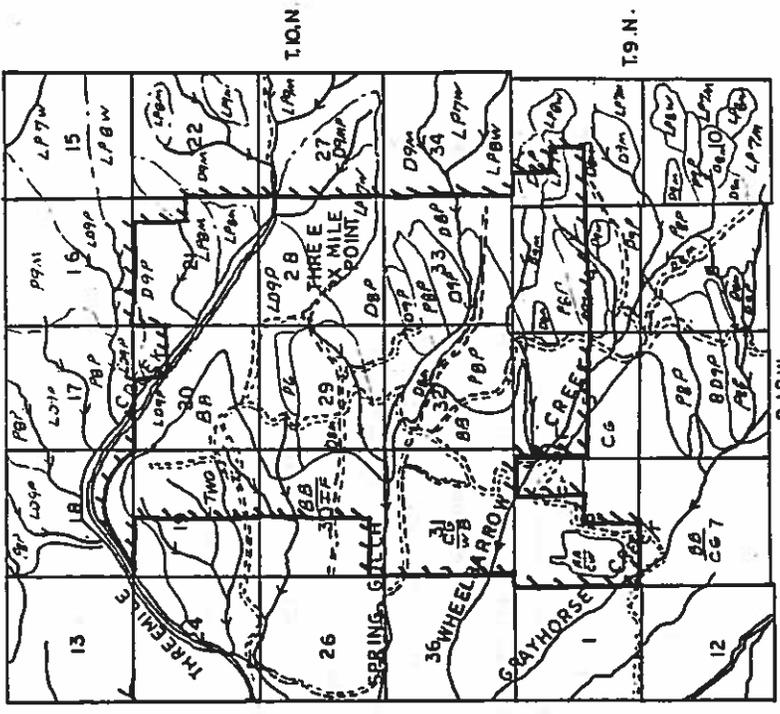
BITTERROOT GAME RANGE
CALF CREEK SEGMENT



CLAUDE SMITH

BITTERROOT GAME RANGE
THREEMILE SEGMENT

Map 4



SCALE
0 2
1:62500

LEGEND
IMPROVED ROAD
UNIMPROVED ROAD

Grassland 2120 acres
Conifer timber 4030 acres
Total 6150 acres

- Crop land
- ▨ Timber
- Grassland
- P Ponderosa Pine
- LP Lodgepole Pine
- D Douglas Fir
- L Larch
- 7 Pole Size*
- 8 Medium Saw Timber
- 9 Large Saw Timber
- P Poorly Stocked
- H Medium Stocked
- M Well Stocked
- BB Blue Bunch Wheatgrass
- IF Idaho Fescue
- CG Cheat Grass
- AA Alfalfa
- CW Crested Wheatgrass
- TWG Tall Wheatgrass
- SG Sage Brush
- RB Rabbit Brush
- MG Wheat Grass
- Th Three-own

Maps 4 and 5 - Vegetation Cover

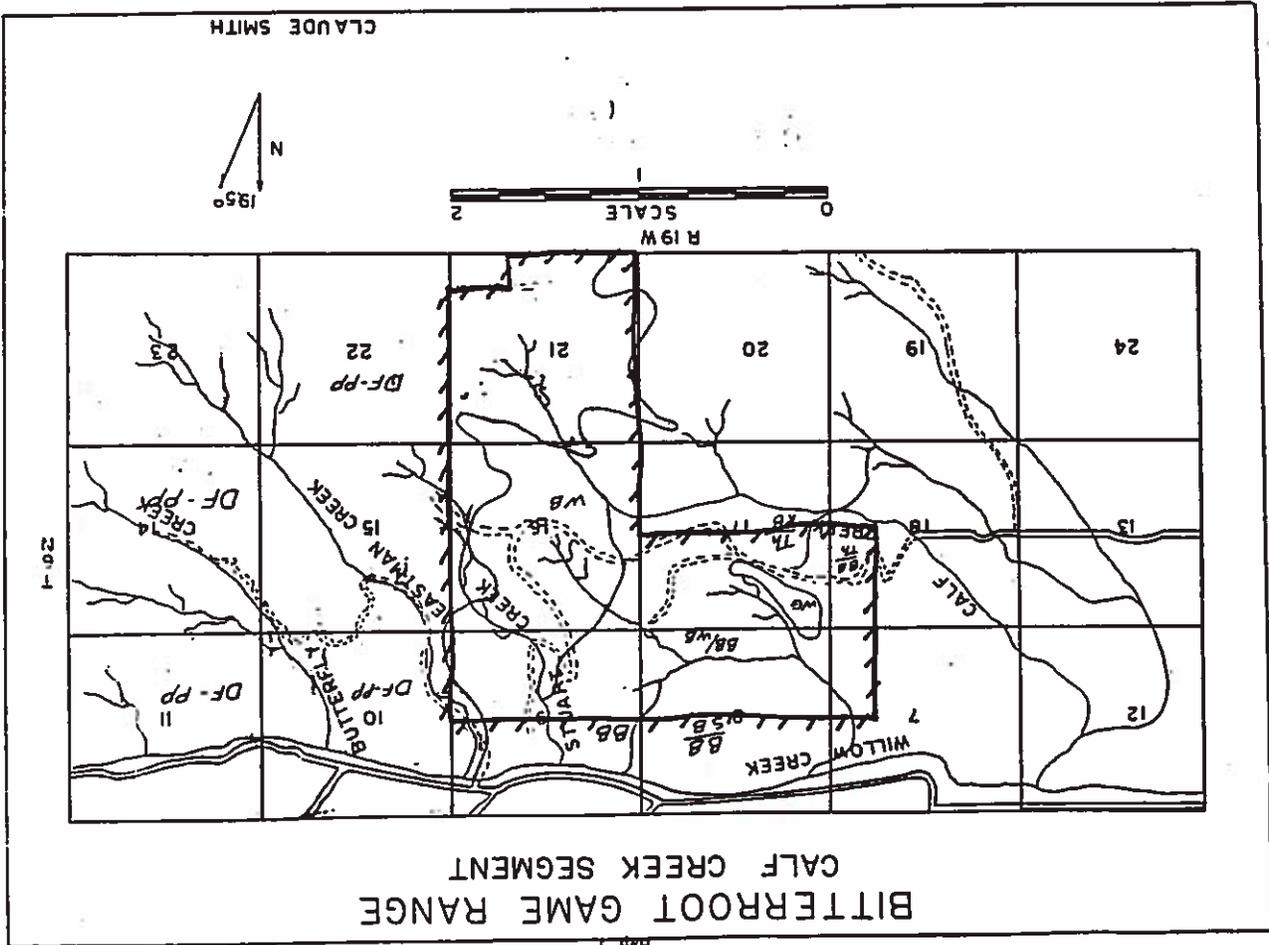
Legend:

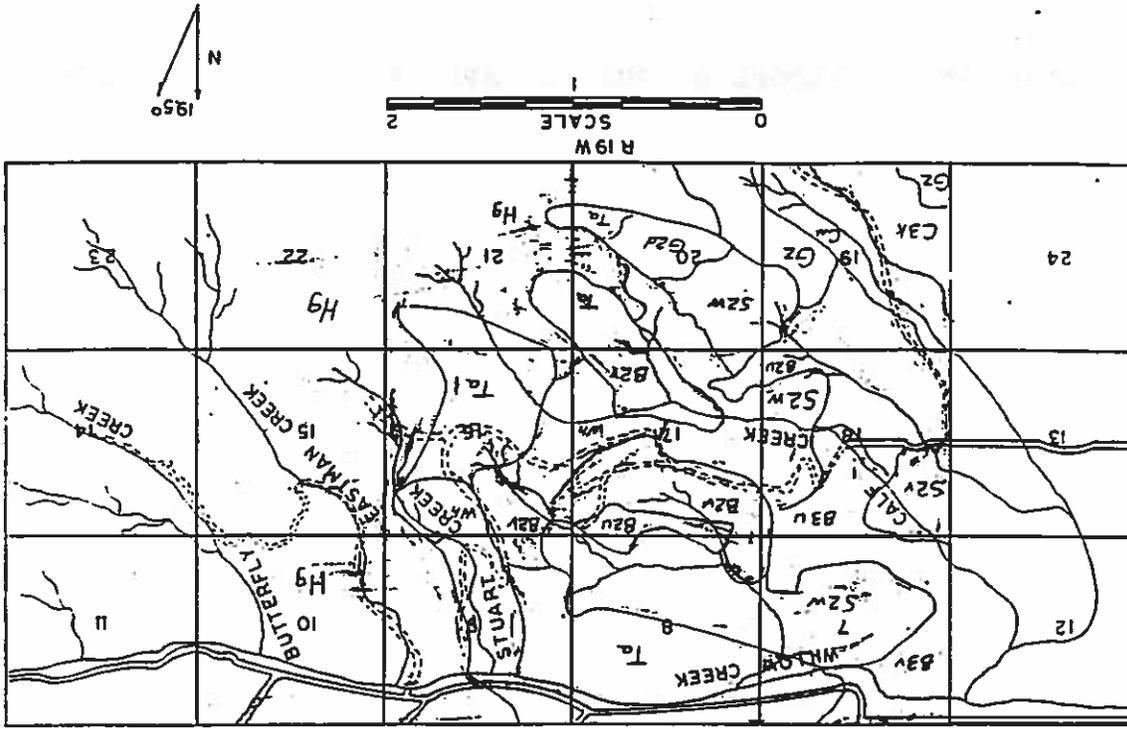
*Example of typing scheme: LP7N = Lodgepole pine stand of pole timber, well-stocked.

Maps 6 and 7 - Soil maps.

Legend:

- AG Alluvial land and valley slopes
- Bv Bitterroot, Nemple, and Ravalli soils
- B2p Brece loamy coarse sand
- B2u Brownlee-Duffy-Ravalli loams--strong slopes
- B2v Brownlee-Duffy-Ravalli loams--moderate slopes
- B2x Brownlee-Stecum association
- B3u Burnt Fork-Ravalli loams, sloping
- B3v Burnt Fork-Ravalli loams, strong slope
- On Castner stony loam
- C3k Cooney loam
- Gv Gird-Haccke silt loams, sloping
- GZ Gird-Haccke silt loams, strongly sloping
- Hg Holloway association, mountainous
- Sg Shook coarse sandy loam, strong slope
- Sh Shook coarse sandy loam, moderate slope
- S2A Skalkaho-Ravalli loam, strong slope
- S2b Skalkaho-Ravalli loam, moderate slope
- S2c Skalkaho-Ravalli stony loams
- S2d Skalkaho-Ravalli stony loams, steep
- S2v Stecum stony loamy coarse sand, strong slope
- S2w Stecum stony loamy coarse sand, moderate slope
- Ta Teton-Cheadle association, mountainous
- Wh Woodrock association, mountainous



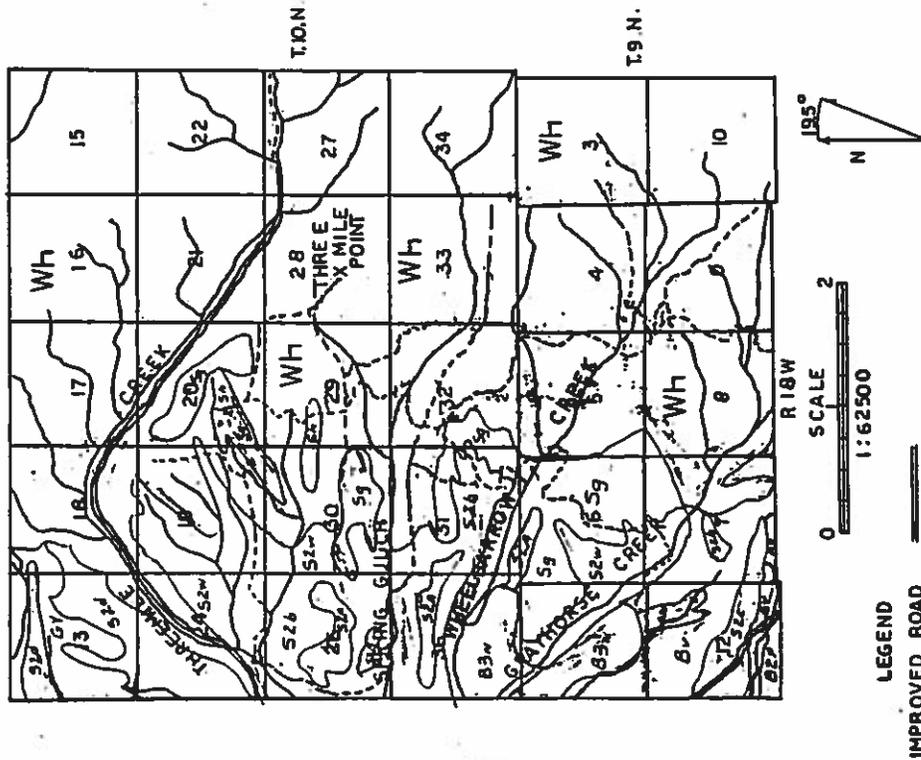


BITTERROOT GAME RANGE CALF CREEK SEGMENT

Map 7

BITTERROOT GAME RANGE THREEMILE SEGMENT

Map 6



LEGEND
IMPROVED ROAD
UNIMPROVED ROAD

CLAUDE SMITH

APPENDIX 3. RECORD OF PUBLIC INPUT AND CORRESPONDENCE



STATE OF MONTANA
ENVIRONMENTAL QUALITY COUNCIL

STATE CAPITOL
 HELENA, MONTANA 59620
 (406) 444-3742

Deborah B. Schmidt, Executive Director

GOV. STAN STEPHENS
 Designated Representative
 Art Wittich

HOUSE MEMBERS
 Jerry Driscoll, Chairman
 Ed Grady
 David Hoffman
 Bob Raney

SENATE MEMBERS
 Jerry Noble, Vice Chairman
 Steve Doherty
 Dave Rye
 Bill Yellowtell

PUBLIC MEMBERS
 Doug Crandell
 John Fitzpatrick
 Mone Jamison
 Helen Waller

May 28, 1992

K.L. Cool
 Director, Department of
 Fish, Wildlife, and Parks
 Fish, Wildlife, and Parks Building
 1420 East Sixth Avenue
 Helena, MT 59620-0701

Dear Director Cool:

I have received and reviewed the Threemile Wildlife Management Area revised draft management plan and environmental assessment prepared by the Department of Fish, Wildlife, and Parks (DFWP) Region 2. Your agency is to be commended for incorporating the required environmental review into the planning process.

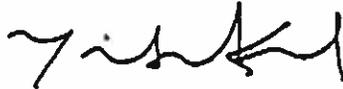
I understand that many of the alternatives and proposed actions contained in the revised plan are controversial. Ultimately, the DFWP must make the decisions regarding the Threemile Unit based on all relevant circumstances. It is gratifying that the department understands that the environmental review process required under the Montana Environmental Policy Act can be used as a tool to facilitate better decisionmaking. Understanding the impacts of a proposed action, analyzing a full range of alternatives, and allowing appropriate public involvement, best serves the agency and all Montanans.

The benefits of environmental review are increased when, as in this case, the review is accomplished in the planing process versus when the agency implements the plan.

Director Cool
May 28, 1992
Page 2

I and the rest of the EQC staff look forward to continued involvement in the department's MEPA implementation project and working with the DFWP MEPA Committee and agency field personnel. Your agency's dedication to improving MEPA compliance is commendable.

Sincerely,



Michael S. Kakuk
Staff Attorney

cc: Pat Graham,
DFWP MEPA Committee
Mike Thompson,
DFWP Wildlife Biologist, Region 2



Ravalli County Fish & Wildlife Association

P.O. BOX 938 • HAMILTON, MONTANA 59840-0938

MAY 21 1992

FISH
MAY 21 1992

May 21, 1992

Mr. Mike Thompson
Montana Department of Fish, Wildlife, and Parks
3201 Spurgin Road
Missoula, MT 59801

Mr. Thompson,

The Board of Directors of the Ravalli County Fish and Wildlife Association considered the Threemile Wildlife Management Area Draft Management Plan and Environmental Assessment dated April 10, 1992, at their monthly meeting on May 11, 1992. After some discussion, the Board voted to support the basic plan with the following comments.

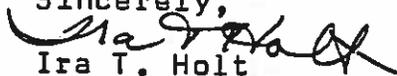
1. The road closure should be extended until June 15.
2. Livestock grazing should be a "deferred rest rotation" system to help in noxious weed control.
3. Additional fencing may be required to properly control livestock grazing.

Some additional concerns expressed during the discussion should be brought to your attention.

An effective monitoring system to evaluate the effects of livestock grazing should be set up. Herbicide use should be done with caution. Other weed control measures should be used with the goal of eliminating the need for spraying.

The final management plan should be more specific in regard to grazing rotation methods and how results of the plan will be monitored.

Sincerely,


Ira T. Holt
Board Member



Reply to: 2450

Date: May 19, 1992

MAY 21 1992

Mike Thompson
MDFWP
3201 Spurgin Road
Missoula, MT 59801

Dear Mike:

We have reviewed the Draft Management Plan and EA for the Threemile Wildlife Management Area. We support the primary goals of restoring and sustaining the natural productivity of the ponderosa pine/bunchgrass/riparian ecotone, providing high quality winter range for elk and mule deer, and providing quality recreation opportunities. The proposed actions for travel management and livestock management do not conflict with management objectives on the Stevensville Ranger District.

As was discussed by yourself and Cal Joyner, the Forest Service would need to complete a separate environmental analysis under guidance of the National Environmental Policy Act for proposals to use chemical herbicides to control noxious weeds on National Forest System (NFS) Lands. Until this analysis is completed, we cannot allow broadcast or roadside herbicide treatment on the 80-acre NFS inholding located within the Wheelbarrow land management unit. The current environmental analysis schedule for the Stevensville district is quite full. We are not able to add the analysis for the Threemile area at this time but will schedule it in the next year's planning.

If MDFWP is willing to defer noxious weed treatment until 1993, it would allow us time to complete the appropriate analysis and determine how to best accommodate treatments while meeting the standards and guides set forth in the Bitterroot National Forest Land Management Plan. If weed treatment cannot be deferred, National Forest System land must be avoided. Please inform me of when you plan to implement herbicide treatments in the Wheelbarrow land management unit.

On page 11 of the Draft Management Plan and EA, there is discussion of the boundary fence which is managed under cooperative agreement by the Bitterroot National Forest and the MDFWP. The document states that maintenance and completion of fencing has been disrupted due to staff changes on the Stevensville Ranger District. Staffing has changed in the area of range program management. Tom McClure is the forest Range Conservationist and Range Program Manager. Tom works out of Sula Ranger District but coordinates with the Stevensville District Ranger on all range-related activities. We, too, are interested in carrying out the intent of the cooperative agreement for managing the 1/2 mile boundary fence in section 3 (T9N, R18W), to prevent livestock from crossing the WMA eastern boundary and look for further communication on this issue.



UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

1709 N. 1ST STREET
HAMILTON, MT 59840

May 1, 1992

Mike Thompson
MT Dept. of Fish, Wfl. & Parks
3201 Spurgin Road
Missoula, MT 59801

Dear Mike,

I appreciate the opportunity to review your ThreeMile WMA management plan. It appears to be a very thorough proposal with sound management objectives. I would like to especially commend your efforts for continued multiple use and plans for weed control. In case you were unaware of it, I do have some good baseline data of the Knapweed density in the old cropland area, before you treated with Tordon. I would be happy to share this with you if you can find it of value.

Specific to the siltation of Threemile Creek from your access road, we do have the following suggestions:

1. Four of the existing 12" culverts could be replaced with 24" culverts to hasten plugging.
2. Adding one additional 18" culvert should help alleviate drainage problems.
3. Reestablish the road ditch on the uphill slope of the road to help direct runoff.
4. Lay a rock chute under the pipe that is washing out on the downhill side.
5. Broadcast a dryland grass mix on the uphill slope to try and slow down runoff. This also may require treating this area with herbicide to control Spotted knapweed.

These measures may not be all that cost effective in terms of maintaining a viable access road; but they should help reduce sedimentation to the Creek. As it turns out, we will not have the funds from our Water Quality Project to assist with these measures. Although we would encourage their consideration if they work into your plans.

If you have any questions, feel free to call me at 363-5010.

Sincerely,

Keith M. Robertson
Keith M. Robertson
District Conservationist
Hamilton Field Office

MAY 12 1992

May 10th, 1992

FISH

MDFW&P

3201 Spurgin Road
Missoula, Mt. 59801

A few brief comments on the Threemile Wildlife Area Draft Management Plan and Environmental Assessment.

Two seasons ago I participated in a field trip to the Threemile WMA with members of the DFV&P and others to observe the results of a spraying project carried out the previous spring. The results were most dramatic, at least to this observer.

We also looked at the condition of other untreated rangeland and discussed future spraying projects to bring back some native grasses on land that was heavily infested with knapweed. We looked at old logging roads which had been put into place with little or no concern for erosion or location and considered how and where to close roads in order to protect the soils and the grasses in the area.

The draft seems to have an understanding of the problems that WMA presents, and if funds and manpower are available, the Dept. should be able to put into action a management plan that will benefit the wildlife as intended.

Keeping trespass cows out is certainly a must if the WMA is to achieve its purpose. Gate closing and fence monitoring should keep cows under control.

Road closure in general seems to be the most important tool available in handling not only cows but humans, too, with their machines.

I did not see any specific discussion of off-road vehicle use. I seem to remember on the trip we took, that that use was also an item of concern. How is off-road vehicle use being controlled? Or isn't it? Such use has great potential for severe negative impacts on land as well as on wildlife.

Please send me a copy of the final when it is ready. Thank you.

DORIS H. MILNER
65 RICKETTS RD.
HAMILTON, MT. 59840

Sincerely,
Doris Milner

**Montana Department
of
Fish, Wildlife & Parks**



3201 Spurgin Road
Missoula, MT 59801
May 4, 1992

John Grove
Technical Group Chairman
Friends of the Bitterroot
1067 Ambrose Creek Road
Stevensville, MT 59870

Dear John:

Thank you for the interest you have expressed in the draft management plan and EA for the Threemile Wildlife Management Area. I am providing a written documentation of today's telephone conversation for our mutual reference. In addition to helping you and me, this letter provides a means of updating other involved DFWP personnel so that everyone has the same understanding.

The date on the top of the EA--April 10, 1992--is the date the EA was mailed to you from this office. Today I returned your call of May 1, and you indicated that the May 11 deadline is too short for the Friends. You requested an extension to the end of May. We agreed to wait until receiving your comments at the end of May before making "final" (a working management plan is never final) revisions on the overall management plan. However, DFWP must remain firm on the May 11 deadline to receive comments on its proposal to spray knapweed this spring. This is due to the practical problem of effective herbicide-application timing; we want to retain the physical and logistical possibilities of spraying in late May or early June if, indeed, spraying turns out to be the best decision. Therefore, we agreed that DFWP will consider public comments postmarked as late as May 11 with regard to this spring's weed-spraying proposal. Again, DFWP will wait until June 1 to begin "final" revisions on the rest of the management plan.

Secondly, you were concerned that negotiations with Ernie Bolin for a cooperative livestock-grazing lease might be completed before the public comment period is over. You expressed concern that the decision was already made. I hope the EA did not give you that mistaken impression. My reading of the Proposed Action on pages 12-13 does not imply that negotiations are being completed; in addition, the EA specifies that any potential grazing lease is

subject to Commission approval, which is yet another public process. The Time Table on page 29 indicates that the May 11 deadline pertains to comments on livestock grazing, but DFWP has decided not to introduce livestock on the Wildlife Management Area in 1992, so this deadline may be extended through the end of May.

John, as we discussed over the phone, this draft management plan and EA was prepared and distributed for public comment not only in compliance with MEPA requirements, but also in compliance with the spirit of the law. It represents a good faith effort to inform and involve the public. It is difficult to imagine that the draft will prove to be completely satisfactory without changes, and DFWP is prepared to do a complete rewrite if necessary to effect the best possible management on the ground. No decisions regarding the proposed action have been made in advance.

During our phone conversation, and preliminary to your formal comments, you "objected strenuously" to weed spraying as proposed. The points you raised prompted counterpoints in my mind, which I'm sure would, in turn, draw more information from you. In other words, I anticipate that the thoughtful comments you offer should be followed by discussion to air all information and allow for some collective brainstorming. In my experience, this can best be accomplished by looking at the problems onsite. Please consider meeting me at Threemile--either before or immediately after you submit the Friends' formal comments--if you agree it would be worthwhile.

I hope this clears up any confusion (I hope it doesn't create any), and I look forward to your comments on the draft plan.

Sincerely,



Mike Thompson
Wildlife Biologist

cc: John Firebaugh
Rich Clough
Lyn Nielsen
Steve Knapp
Eileen Shore

Mr. Mike Thompson
DFWP
3201 Spurgin Road
Missoula, Montana 59801

MAY 1 1992

May 10, 1992

Dear Mr. Thompson:

The Draft Management Plan and Environmental Assessment for the Threemile Wildlife Management Area (WMA) dated April 10, 1992 is one of the most legally insufficient Montana Environment Policy Act (MEPA) documents that has come to our attention. Procedurally, the document is sadly lacking.

For example, the legal Notice appearing in the April 29, 1992 edition of the Ravalli Republic stated that comments must be received by May 12, 1992, (emphasis added). Citizens have no control over Postal Service delivery and there was nothing in the legal notice as to the latest date a letter must be postmarked in order to be considered timely.

The April 10, 1992 letter which accompanied the Draft Management Plan and Environmental Assessment stated "Please provide any specific comments before May 12." (emphasis added) Again, there was nothing in the letter or the accompanying document to indicate at what date before May 12 must a letter be received to be considered timely. To add to the confusion, at EA page 29 it states "To influence DFWP knapweed control plans for the spring of 1992, public comments must be received before May 12, 1992". (emphasis added) Similarly, to influence negotiations with the Bolin Ranch to develop a cooperative livestock grazing lease, public comment must be received before May 12, 1992". (emphasis added) Obviously, if a citizen didn't deliver their written comments to Mr. Thompson before May 12, 1992, (and how much before is anyone's guess), they would have no influence on the spring of 1992 chemical spraying of knapweed or on the negotiations to permit domestic livestock grazing on the Threemile Wildlife Management Area (TWMA).

Both proposed actions certainly have the potential to be highly controversial. There was nothing in the legal notice placed in the Ravalli Republic that would indicate the above.

For the reasons so stated in this letter, the TWMA draft environmental assessment should be withdrawn.

It should be pointed out that in 1989 and 1990 the DFWP Director did not go through the MEPA process, and in clear violation of the MEPA intent, sprayed herbicide on approximately 360 acres in the WMA. (EA at 7 and 14) The project did not generate much controversy because few people knew about it then.

The DFWP certainly had ample time to initiate a scoping process, which in turn could have been used to inform the public, receive comments and develop a reasonable range of alternatives and proposals. The DFWP just a few years ago when modifying the "travel plan" for this same area entered into a process of early scoping to inform the public and to generate informed and timely public participation. That approach was used in dealing with the public then, so why was not such a straightforward and reasonable approach used again in this situation. We believe it was likely because one involved ORV users and one involved herbicides and increasing grazing on a State Wildlife Management Area.

Scoping/public involvement could have started at any point since the first spraying in 1989. The action of the DFWP in not using the MEPA process, prior to taking action in 1989 and 1990, indicates the Department clearly realized the herbicide spraying proposal might generate controversy and might be considered to have significant effects. At that time representatives from the USFS were deeply concerned that DFWP had not complied with any proper environmental procedures.

Because the agency arbitrarily and capriciously decided not to engage in scoping in a timely manner prior to the Department's wishes to take spraying action this May or early June is not legally sufficient justification to now rush through the MEPA process. This is not an "emergency action" by any stretch of the imagination. Unless the Department also sprayed herbicide in 1991, (and did not disclose it), we point out that the DFWP did not unduly concern itself with missing the "opportunity" to spray last year.

The DFWP, because of the previous spraying activity outside of any process required by the MEPA, appears to have already taken actions which subsequently affects this decisionmaking process. The agency "draft" now points to the purported "success" of the past spraying program and is using that illegal action to somehow justify now rushing into this current decision. Agencies are not allowed to take precedent actions that may materially affect the "decision" currently being studied in a environmental assessment document.

We maintain the previous spraying consists of such an act that leads the public to believe that the agency, not withstanding their protestations otherwise, has already "in fact" made the decision to spray.

If this were not the case, why else then did the DFWP ignore their clear duty under MEPA previously?

And, why else would the DFWP be in such an unseemly rush to belatedly and insufficiently comply with MEPA now?

We maintain that the currently proposed actions, as described, may have a significant effect on the human environment and an Environmental Impact Statement (EIS) must instead be prepared.

We say this because:

1. The action has the potential to affect public health and safety.
2. The proposed action is highly controversial.
3. The proposed action can be precedent setting.
4. The proposed action could have highly uncertain and unknown risks to the human environment.
5. The proposed action is related to other actions which could have a cumulatively significant impact.

"...early indications are that repeated periodic herbicide applications will be necessary to maintain this effect."

(EA at 7)

"DFWP would use herbicides periodically to control existing infestations and increase grass production for elk winter-spring forage on previously cultivated and native rangelands in the lower Threemile and Wheelbarrow Units."

(EA at 13)

Issues & Concerns:**1. Chemical spraying for weed control.**

Not disclosed were the direct, indirect and cumulative impacts, now and in the reasonably foreseeable future (10 years), of spraying the chemical picloram on approximately 660 acres for knapweed control.

-(EA at 14)

(Given the past lack of compliance with the environmental regulations, we question if that is the only chemical that potentially could be used over the ten year timeframe.)

Of great concern are the direct, indirect, long-term or cumulative effects from all chemical spraying on;

- a. Humans
- b. Songbirds
- c. Grouse - ruffed and blue
- d. Hawks and owls
- e. Animals
- f. Insects
- g. Soil-effects on soil organisms and persistence of the herbicide
- h. Water - ground and surface
- i. Fish and aquatic insects or plants
- j. Reptiles

The EA states that although there was an impressive positive grass response after chemically spraying 360 acres in 1989, indications are that periodic herbicide spraying will be necessary to maintain that effect. (EA at 7 and 13)

Roadsides would also be sprayed every 2-4 years. (EA at 14)

Obviously, what is being proposed is a long operation that would spray herbicides over a significant portion of the TWMA for at least the 10 year planning period and possibly longer. (EA at 13)

Federal agencies have initiated environmental impact statements when addressing herbicide/pesticide spraying proposals. Clearly, they acknowledged there existed both a "may significantly affect", and "highly controversial" factor which are two tripwires for requiring an EIS instead of an EA. It appears highly unreasonable and legally unjustifiable for the DFWP to now attempt to do otherwise.

2. Travel Plan.

Judging from the current travel plan and the lack of enforcement of that plan, particularly during the summer months, DFWP personnel are not seriously concerned about controlling knapweed on the TWMA.

From May 15 to August 30, DFWP personnel have opened 11+ miles of road within the WMA to motorized vehicle traffic. Physical barriers such as roadside fencing are practically nonexistent; motorized vehicle operators are using the WMA as a summer playground.

Owners of ORV's are coming from as far away as Missoula to run their vehicles over the varied and comparatively open terrain of the WMA. This situation has not been disclosed in the EA nor have the effects of ORV use been assessed.

The cumulative effects of potentially greater ORV use have not been assessed or disclosed in this environmental document either.

The human population of the Bitter Root Valley and Missoula area is predicted to significantly increase by the year 2000. Greatly increased ORV use on the TWMA can be expected. Without continual DFWP presence on the WMA it is impossible to keep ORV users on the 11+ miles of road that are currently open to motorized use.

Unless motorized users are restricted to the roads it is, in our opinion, nonsense to indicate in the EA that knapweed can be controlled through continued chemical spraying. Without significant revisions in the current travel plan it is our opinion that chemical spraying of knapweed is a waste of money and effort.

3. Domestic livestock grazing.

The EA points out in a short paragraph how it would be beneficial "...to incorporate appropriate WMA lands into the livestock grazing systems of adjacent landowners in key elk habitats." (EA at 12)

The purported benefits are pointed out in the same paragraph - "...achieve DFWP's soil stabilization, weed control, vegetation restoration, cooperative elk management, and public appreciation objectives (Objectives 1-6, 10) on an ecosystem scale...."

The DFWP proposes to spread private landowners livestock over more area, reduce overall grazing intensity on all effected ownerships thus improving wildlife habitat and enhance native plant growth and reproduction which would, of course, improve range conditions. However some domestic livestock are already permitted on the WMA. (at 12)

In addition, "...significant current livestock trespass..." is occurring. (at 9)

Our observations are that unauthorized grazing is occurring over much of the WMA. In fact, cattle occurrence is so common in the WMA that some visitors believe it is authorized. Apparently some of the unauthorized stock are coming into the WMA along 8 miles of old fencing that needs to be replaced. (EA at 11)

One would think that with present stocking levels the DFWP would have already achieved their before-mentioned objectives, but obviously that hasn't happened. The rationale as to why increasing the stocking levels would improve the situation is not disclosed.

We are very concerned with the proposal to go from essentially "no livestock are currently permitted on the WMA..." (at 12), to the more extensive "cooperative grazing" concept now proposed.

The lands are Wildlife Management Areas and we believe are thereby primarily for the benefit of the wildlife.

No discussion as to increased degradation of the watersheds or riparian areas within the WMA due to either spraying "drift" or from domestic livestock use was evident.

While the rationale for the spraying is tiered to improving forage for wildlife, we are uncertain if increased forage will be an excuse for increasing the domestic livestock grazing numbers in the future. We found nothing that would prevent this from occurring. If that were to happen the spraying would clearly be at taxpayers expense to benefit private grazing permittees.

The draft EA mentions that increasing elk numbers may have an effect on the adjacent private landowners.

Perhaps, if the landowner does not now allow hunting on the "affected" private lands, this requirement should be written into any cooperative agreements considered. If the permittee could benefit from any taxpayer funded spraying programs, it would seem appropriate that the public also receive "cooperative" benefits by the increase in hunting access too.

Federal agencies have a "utilization standard" restricting the amount of forage that may be consumed by domestic livestock grazing on wildlife winter ranges. The DFWP analysis briefly gave a cursory mention to this concern, (at 13), but provided no details on what the limits would be. This must be clearly spelled out up front and disclosed to the public.

It is obvious that one way to increase available forage for wildlife is to forgo any domestic grazing on the WMA. Yet, perhaps because of the DFWP's prior illegal spraying actions, this concept appears to be overlooked or given little weight in this analysis.

The fact of the heavy cutting on federal lands adjacent, in part, has been rationalized by that agency to "increase forage for wildlife". Private lands within the vicinity are also being harvested besides. This environmental analysis does not speak to this either. It would appear that the "increased forage production" on federal lands alone may lessen the need to require spraying to create even more forage on the WMA.

The EA also mentioned an increase in elk numbers on the WMA, tied purportedly to increased forage after the prior spraying actions. While improvement in forage may certainly be part of the increase, the continuous ongoing cutting activities on federal and private lands may also have contributed to the elk moving to this area to escape these disturbances.

Elk populations could perhaps be also increased by attempting to mitigate the dramatic loss of security on federal timber lands by initiating extensive road closures requiring more walk-in hunting. This was not addressed or disclosed in this document either. A cumulative effects analysis cannot suffice by drawing a boundary on paper and ignoring factors occurring on the surrounding lands.

4. The range of alternatives presented is clearly not adequate either.

The "No Action" alternative discusses selling of the public's lands and tries to accommodate some form of "sagebrush rebellion" mentality. That is hardly a "No Action" concept, but a sell out by the DFWP to special interest groups, and if seriously presented as an alternative would likely result in a dramatic public opposition. If it is not a "serious" alternative, then it is not part of a reasonable range either.

A true "No Action" alternative would be one in which the current situation is not changed in any meaningful way.

The "No Herbicide" alternative is dismissed in part by the spurious claim that the local economy would be adversely affected by a loss in spraying contracts. (at 27) (No mention is made of "economic benefits" that could accrue if labor was hired to reduce the knapweed without herbicides, or was that concept too farfetched to mention?) Unless there are already signed "contracts", in fact, it appears there could hardly be a significant loss of something that doesn't now exist.

No mention of potential harm from the "spraying contracts" is entered into the equation.

The "No Public Access" was just that - locking out the entire public from using these lands.

(Was that supposed to be a serious alternative?)

If a seriously considered alternative, we believe the public outcry would have been intense, and a "highly controversial" tripwire is again reached.

There was an alternative that was entitled "More Motorized Access", a topic which in many respects had been already dealt with in an earlier scoping process involving the public.

Since the question was revisited and reopened by the DFWP in this EA, (and if it was truly a "real" alternative), the blatant lack of any alternative that contained a meaningful discussion of a "No Motorized Access" proposal clearly makes the ranges of alternative insufficient by any reasonable standard.

In summary, we do not believe that the DFWP can be seriously concerned about controlling knapweed and improving range conditions until the use of motorized vehicles operating off the roads is terminated and the exterior boundary is properly fenced to prevent unauthorized domestic livestock grazing.

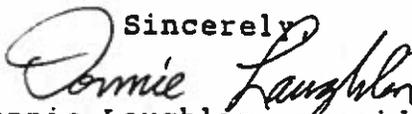
We believe that this alternative will produce better and more long-lasting results in a shorter time period than the periodic chemical spraying and increased livestock grazing.

In a May 4, 1992 letter to John Grove, Mr. Mike Thompson indicated a desire to meet with us onsite and discuss the administration of the WMA. We would welcome that opportunity.

Since the DFWP has decided to maintain their arbitrary time schedule and continue forward with a legally insufficient MEPA document, we hereby formally request to be notified immediately and in a timely fashion of any "Decisions" or "Actions" pertaining to, or resulting from this MEPA analysis.

At that time we will actively pursue all appropriate avenues to ensure a full and meaningful compliance with the MEPA.

Sincerely,



Donnie Laughlin, president
(for) Friends of the Bitter Root, Inc.
Box 442
Hamilton, Montana 59840

Montana Department
of
Fish, Wildlife & Parks



3201 Spurgin Road
Missoula, MT 59801
May 22, 1992

Donnie Laughlin, President
Friends of the Bitterroot, Inc.
POB 442
Hamilton, MT 59840

Dear Donnie:

We're sorry you had problems that prevented you from attending our meeting at John Grove's home on May 21. However, we did enjoy a productive discussion with John, Jerry Nichols, Floyd Wood and Kirby Erickson. The subject of the meeting was the draft management plan and EA for the Threemile Wildlife Management Area, and issues raised by the Friends pertaining to that draft. Following are our notes on the substance of the discussions. (John explained that the Friends may or may not support the individual opinions presented by your representatives, but I have collectively referred to them here as Friends for convenience.)

Friends opened the discussion by stating that they hope not to be viewed as the "enemy" in this process. They would have preferred to work informally and resolve concerns in advance, but the "formal" EA necessitated formal responses and preparations for future litigation options if needed. DFWP responded that the EA process is intended to open discussions, providing consistent and detailed information to all interested parties. DFWP hopes that production of an EA promotes discussion as intended; otherwise MEPA doesn't work.

Friends feel that a scoping process similar to the one previously conducted by DFWP to devise the Threemile travel plan would have been a desirable first step in the current process. DFWP suggested that the EA process and public comment are serving that function.

Friends expect that herbicide spraying is controversial, and indicated that the federal govt. goes through an EIS process on spraying. DFWP presented data indicating that only 4% of Threemile hunters interviewed onsite in 1989, and 6% interviewed in 1990, were opposed to spraying previously accomplished at Threemile. DFWP also noted that a sign explaining the weed spraying project was erected in 1989, and that numerous tours have been conducted--

there has been an effort to inform the public and solicit opinions. Friends responded that hunter and WMA-user input is biased, and is not representative of the general public interested in public lands.

Friends were concerned that taxpayer dollars are misused for weed spraying as proposed. DFWP informed the group that hunting license dollars fund the weed spraying on DFWP lands--no taxpayer dollars.

There was a discussion that led DFWP to confirm that knapweed gall flies were abundant on the WMA, and that the flies suppress seed production; however, more than enough seed is produced to replace dead plants and continue weed spread. A complement of several insects is needed for effective biocontrol, and this is at least 10 years away. A good stand of bunchgrass may slow knapweed spread, compared to disturbed sites, but DFWP shared documentation from Glacier Park and the WMA that demonstrates knapweed will slowly move into "undisturbed" bunchgrass. Livestock grazing can increase weed spread, particularly if not carefully managed. Floyd suggested that the previously cultivated WMA lands could be planted to bunchgrass to outcompete the knapweed, but success with bunchgrass plantings is limited and DFWP predicted knapweed would remain a problem, even if the planting "took." If the planting was slow to establish, the ground disturbance would set the site back.

Friends felt that DFWP cannot be serious about weed control when we fail to address the large amount of illegal, off-road vehicle traffic during summer, and the significant illegal livestock trespass. These factors promote weed spread, and until DFWP solves these problems, spraying will be ineffective. DFWP did not agree that the effect of illegal vehicle use is apparent on the landscape to the degree that it is promoting weed spread. Many of the 20+ miles of roads closed in 1988 are now revegetated and obscure, demonstrating the positive effects of the current road management. If new roads and trails have been made by off-road vehicles, they are not apparent. Areas where weeds were sprayed in 1989 have not been reinfested by weeds to date, even though the areas are bisected by open roads. DFWP recognizes that trespass livestock grazing has been a problem in places, and the current 8.5-mile fence-replacement project on the WMA is intended to help solve this.

Friends were concerned about the rate of reapplication of herbicides. They were concerned about accumulation of herbicides in the environment. DFWP explained that the reapplication rates in the EA were intended to be maximum frequencies; hopefully, reapplication would occur less frequently or not at all, depending upon grass response and biocontrol progress. Friends asked for consideration of a worst-case scenario for aerial spraying--what if the helicopter crashes, loaded with herbicide?

Friends questioned the rationale for initiating a cooperative livestock grazing lease with the current amount of unauthorized livestock use. DFWP responded that the unauthorized use would be

reduced by the new fence, and by working with--rather than against--adjacent ranchers regarding their livestock grazing operations. DFWP explained the proposed rest-rotation grazing system, how it might be employed on the WMA and the Bolin Ranch, and showed the Friends a similar lease from another WMA (termination language was reviewed and discussed). DFWP and Friends seemed to be on common ground once the principles of the anticipated grazing system were explained. Friends indicated that the vague language in the EA promoted questions and concerns regarding livestock grazing. DFWP responded that much of the lease terms are negotiable--the lease has to be beneficial to both parties; any lease triggers another public process involving the FWP Commission (DFWP will inform Friends when a draft lease is ready for review). Friends wanted to see disclosure in any future lease regarding the specific habitat values available and being managed on private land, and also to consider management of private thermal cover. Friends suggested that DFWP negotiate some public hunting on private land as part of a grazing lease.

Friends indicated that cumulative effects should be projected over a 10-year time-period; they expect major increases in human use, vehicles and poaching. In this light, Friends advocated more year-round road closures; particularly an alternative that would close the road from the entrance-north, the side loop just north of Spring Gulch, and the southern spurs that junction just south of Spring Gulch. A misreading of open roads on the proposed travel plan map was cleared up, and will be clarified in the final. Friends contended that open roads contribute to poaching, off-road vehicle use, and weed spread. John G. suggested fencing roadsides to physically prevent off-road use. DFWP agreed that the travel plan is open for reconsideration, despite the DFWP/public consensus developed in 1987-88 for the current travel plan. However, DFWP does not prefer a more-closed-roads alternative in addition to the adjustments proposed in the EA. This is because DFWP does not believe the current severity of the problem warrants a reaction against law-abiding motorists at this time. DFWP suggested a travel plan change that would prohibit ORVs anywhere on the WMA (on or off roads); if monitoring suggested this was not effective, DFWP would ask for trust fund money to fence roadsides on a prioritized basis; if this was not effective, DFWP would consider more road closures.

Friends advocated more road closures to make weed spraying effective. DFWP countered that weed spraying is effective currently, and that prohibition of ORVs and progressive actions as needed (such as fencing and, finally, road closures) appropriately address the Friends' concerns. DFWP agreed to consider and present "No motorized vehicles" and "Less motorized access" alternatives.

Jerry was very concerned about the information presented in the No Action alternative, and DFWP agreed that if this were a preferred alternative, it would be a controversial and important issue which would require additional public participation. DFWP does not foresee considering this option again in this decade.

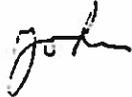
DFWP promised to provide a decision notice to Friends before action is taken on the ground relative to the spraying, grazing or travel plan issues. DFWP asked to present the proposed plan to the Friends steering committee at your next meeting, since Friends indicated that many committee members will not have read the EA.

This concludes our notes of the May 21 meeting. They are not comprehensive, but hopefully reflect the substance of discussions. If there are additions or clarifications to be made, please feel free to send them to us.

DFWP is beginning work on its final plan, which we anticipate will function as a decision notice--and justification for that decision. We will incorporate yours and other public input, and will add technical information to better address the issues that have been raised. As we promised, you will receive a copy as soon as it is ready.

As always, please feel free to call with questions or comments. Thank you for your written comments and the helpful discussion that followed.

Sincerely,



John Firebaugh
Wildlife Manager



Mike Thompson
Wildlife Biologist

cc: Rich Clough
Bob Lane
Steve Knapp
Michael Kakuk, Environmental Quality Council

Mr. Mike Thompson
DFWP
3201 Spurgin Road
Missoula, Montana 59801

JUN 5 1992

June 2, 1992

Dear Mr. Thompson:

Thank you for presenting the DFWP's proposed action (described in the 3 mile draft EA) to our organization's steering committee on the evening of May 28th. We appreciated the opportunities to discuss the situation and our concerns, and to have the benefit of an open dialogue. Since this EA is a draft stage, we look forward to reviewing how our suggestions are used for any "final" document. Please consider these comments in addition to the comments we previously submitted.

An environmental document is a "disclosure" document for the public and the decisionmaker. The 3 Mile WMA Plan EA fails to "disclose" in key areas, some of which are:

There is no "risk assessment" (RE: herbicides) to be found.

"Significant cattle trespass" is acknowledged, but the violator(s) are not identified in this "disclosure" document. If the "trespass" problem involves parties considered for the "cooperative grazing agreement", the DFWP's proposed action rewards said illegal trespass by now making it legal, and is highly inappropriate. Strict enforcement of non-grazing would be the proper course of action.

The current environmental conditions on the private lands that make the "cooperative grazing agreement" necessary to consider at this time must be clearly disclosed. (The pictures shown at the 28th meeting clearly showed heavy grazing utilization and heavy knapweed infestation on the private lands)

The rational, need, and reasons for how the "cooperative grazing agreement" will be in the public's interests, and the benefit to the wildlife currently using the private lands must be fully disclosed. Since spraying is not proposed on the private lands considered in the agreement, disclosure is needed as to how the forage available for wildlife on the private lands will be increased.

Disclosure of how the riparian areas on WMA lands will be fully protected from damage from domestic grazing.

Disclosure of the specific costs incurred on behalf of the "grazing" proposal - fencing, water-developments, extra patrolling, etc.

We support the DFWP pursuing increased hunting options on the private lands considered for the cooperative grazing concept, (perhaps by some form of a permit-type action?). The goal would be for reducing perceived wildlife "damage" problems to the landowner.

We support a total WMA closure to all public access during the winter to late spring/early summer period so as to benefit the wildlife.

As stated either in our letters or in the discussions, we maintain:

1. An EIS, rather than an EA, is the proper course of action. (This is a long-term Management Plan that involves public lands, and acknowledges that repeated chemical applications will be necessary.

The proposals are significant, controversial, not risk-free, and are costly)

2. The WMA Plan should permanently close off more, (or perhaps all), roads within the WMA.

Specific roads that should be closed now would be:

-The spur road to the parking area in the ENE portion of section 19. (Since the road up the Threemile Creek bottom is not considered for closure, this approximately one mile long spur road can be closed and would improve the wildlife security situation, as well assisting in controlling of noxious weed spread)

-The short loop road in the SW corner of section 29.

(This approximately one mile long loop road serves no purpose and should be closed)

-The two roads that together branch off the main road in the NW corner of section 32.

(Security and prevention of noxious weed spread will be enhanced by closure of these needless roads)

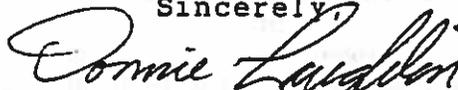
3. That ORV use is not appropriate within the WMA, and should not be allowed. The WMA is for the benefit of wildlife and is not a "play-ground" for ORV users. There are plenty of other public lands available for their use.

4. In any "grazing agreement" even considered, there must be a lease "sunset clause" and it should be at most for 3 years, rather than 5 years. (Year to year is more preferable) This will allow appropriate review to see how the "agreement" is being complied with, and will be flexible in case of land ownership or "use" changes.

We, at this time, formally request that when the DFWP makes a "Final Decision" regarding the Environmental Assessment:

- That there be an immediate formal notification to our organization.
- That there be a 15 day period between the "Decision" and the taking of any actions proposed in the Final EA by the DFWP.
- That we be informed ahead of time, and in writing, if this "15 day time frame" will be available.

Sincerely,



Donnie Laughlin, President
(for) Friends of the Bitter Root, Inc.
Box 442
Hamilton, Montana 59840

**Montana Department
of
Fish, Wildlife & Parks**



3201 Spurgin Road
Missoula, MT 59801
June 8, 1992

Donnie Laughlin, president
Friends of the Bitterroot, Inc.
Box 442
Hamilton, MT 59840

Dear Donnie:

Thank you for your continuing interest in the Threemile Wildlife Management Area. As I write this, the "spit and polish" is being applied to the revised management plan. Barring logistical foul-ups, a copy of this plan will be mailed to you tomorrow--hot off the press. This revised version represents my decision for management direction at Threemile.

As you have been aware since John Grove first contacted Mike Thompson last May 4, DFWP is up against deadlines imposed by Mother Nature regarding the option of spraying knapweed this spring. In this drought year, plant phenology is unusually advanced and has put extra pressure on us to be as timely as possible if we want to retain the option of applying herbicide this spring. As late as your most recent meeting with Thompson and John Firebaugh (May 28), DFWP agreed to send you a decision notice--taking the form of the final management plan--immediately after it was finalized. However, you first requested a 15-day period between the decision and implementation in your letter dated June 2 (postmarked June 4, pm; received by DFWP midday on June 5). Since Mike Thompson was working on the management plan over the weekend of June 6-7, he was able to add substantial material to the plan that reflects many of the concerns expressed in your latest letter; therefore, your organization--and DFWP--benefitted from a public comment period which extended, in effect, from April 10 through June 5. However, due to practical limitations, DFWP cannot promise the 15-day waiting period you have requested regarding the weed control portion of the management plan.

DFWP and its contracted commercial applicator have tentatively agreed upon the week of June 15 to spray knapweed at Threemile. The exact date will depend upon weather conditions and the pilot's schedule. If our inspection of the range indicates that plant growth is too advanced for the treatment to be optimally effective,

DFWP will have to wait for the next window of opportunity, which is expected this fall.

The portions of the plan regarding livestock management, travel plan, other vegetation treatments, inventory and monitoring, and public involvement are not subject to the practical limitations that dictate the timing of herbicide application. Therefore, your request for a 15-day waiting period on these actions is easily within DFWP's control to grant, and I am happy to do so.

When you receive the final plan, please give it a thorough review. This revised plan reflects considerable effort to evaluate and incorporate the helpful suggestions and comments we have received from you over the past month. In particular, note that the plan provides for less frequent retreatments with herbicides than was proposed, and that additional consideration is given to mechanical control options. An improved risk/cost assessment regarding herbicide use is added. More information and explanation is provided regarding cooperative grazing leases. ATVs may not be operated on the WMA--which was a change made in discussion with your group--and your other travel plan alternatives are displayed and discussed. Additionally, your comments and all other comments received by DFWP are attached and preserved with the final plan; hence, they will be available for further review during future revisions or reconsiderations.

Thank you again for your interest and effort on this issue. Please remain involved, and feel free to accompany our personnel on any of their management or monitoring activities.

Sincerely,



Rich Clough
Region 2 Supervisor

cc: Bob Lane, DFWP

United States
Department of
Agriculture

Forest Service
Lolo National Forest

Building 24
Fort Missoula
Missoula, MT 59801



Reply to: 2600

Date: May 6, 1992

Mike Thompson
Department of Fish, Wildlife, and Parks
3201 Spurgin Rd
Missoula, MT 59801

Dear Mike:

Thanks for the opportunity to review the draft Management Plan/EA for the Threemile Wildlife Management Area. In general, I think it's a good plan, and we support the proposed action. I have the following minor comments:

Objectives, pp. 10- The goal is to increase the herd from 130 to 250 animals. I had trouble making the connection between the discussion on weeds on page 7, and to what degree this actually has reduced carrying capacity. Perhaps some references on how knapweed impacts bunchgrass range would clarify this relationship. 90% chemical has documented losses in per acre forage productivity of over 90% due to severe knapweed infestation (perhaps not the most unbiased reference). Another source is our Weed EIS, which suggests similar losses in grass forage productivity attributable to noxious weed invasion.

In 1990, the Lolo, Bitterroot, and FWP completed an elk cumulative effects analysis for the entire Threemile elk herd unit. Major symptoms of poor summer range elk herd productivity were identified including an open road density of 2.56 miles/square mile, and a postseason observed bull/cow ratio of 3/100. Lyn Neilsen suggested that the high open road density might be facilitating poaching. While I'm not suggesting that summer range conditions are solely responsible for poor winter range productivity, it might be worthwhile to quote those numbers and discuss the potential relationship between winter and summer range. The cumulative effects analysis and pages from the Weed EIS are attached.

Alternatives to the Proposed Action- No Grazing, pp. 26- After our phone discussion, I reread the grazing section and it made perfect sense. I think the closing sentence (top of page 27) could be clarified by changing it to read "the no livestock option would negatively impact soils, watershed, and native plant and wildlife communities on adjacent private lands, compared to the proposed action. Allowing no grazing on the WMA would result in reduced tolerance for elk grazing on private lands which could make it impossible to meet the goal for increased wintering elk populations."



Caring for the Land and Serving People

FS-0200-2017-051



Caring for the Land and Serving People

FS-0200-2017-051

Other Agencies/Individuals With Overlapping Jurisdiction- I suggest you add a paragraph describing the summer range. Thanks to Les Marcum's research and our recent cumulative effects analysis, we have good information on animal movement, summer range conditions, and limiting factors on the summer range. I'm not sure how successful we'll be in correcting summer range problems, particularly in reducing the open road density. Whatever we do, however, it'll be important to demonstrate to the public that our efforts on winter range and summer range are coordinated.

Thanks again for the opportunity to comment,

Sincerely,

MIKE HILLIS
Wildlife Biologist

enclosure

United States Forest Service Lolo National Forest Building 24
Department of Agriculture Fort Missoula Missoula, MT 59801

REPLY TO: 2630 Habitat Date: December 7, 1990

SUBJECT: Sapphire Divide Cumulative Effects Analysis, Elk Security

TO: District Rangers, Missoula and Stevensville RD's

The Sapphire Divide Cumulative Effects Biologists Group (see memo 2630/2430 7/12/90) met on November 19, 1990 to: 1) evaluate information collected; 2) identify cumulative effects problems associated with elk security; and 3) develop alternative strategies for problem resolution. Participants included:

Mike Hillie Lolo National Forest
Pat Doan Lolo National Forest
Cheri Ford Bitterroot National Forest
Nancy Ryke Bitterroot National Forest
John Ormlston Bitterroot National Forest
Dave Silvieus Bitterroot National Forest
Jodie Canfield Dearlodge National Forest
John Firebaugh Department of Fish, Wildlife, and Parks
Lyn Nielsen Department of Fish, Wildlife, and Parks

Current Elk Population and Age Structure- According to John Firebaugh, the Threemile Game Range has surplus forage. The Department feels that the area could support a significantly larger wintering elk population than currently exists. In an effort to increase the population, antlerless permits have been cut back within the last decade, until 1989 when no antlerless permits were issued. (Figure 1). These efforts have failed to increase the elk population. While total elk numbers in Hunting District 204 have increased (Figure 2), all of the increase has occurred in the south end of the analysis area on the Wolf Ranch, and not on the Threemile Game Range. Lyn Nielsen attributed some of the problem to poaching caused by a high level of road access in areas of poor security.

Bull carryover has declined significantly since the year when data was first collected. Yearlings now make up between 55 and 65% of the harvest (Figure 3). The post-season number of bulls per 100 cows has declined to about 3/100 in 1989 (Figure 4).

Hunter numbers have declined in recent years (Figure 5). During that period, however, the interest among hardcore elk hunters and the time spent per hunter has increased. Thus the pressure on the population has remained very high.

Elk Movement- We have excellent information on elk movement and use patterns in the analysis area. Les Marcus's research done in the 70's identified the following facts: 1) all elk winter on the Bitterroot side of the analysis area; 2) preferred summer range is the high, mesic basins on or along both sides of the Sapphire divide; 3) during the hunting

season, heavy hunting pressure pushes elk down onto the lower, steeper slopes of Rock Creek; 4) since these lower, steeper slopes are less desirable, elk exhibit a "mid-week" tendency to move back up slope and even back to upper Threemile Creek; and 5) this movement pattern is typically repeated from weekend to mid-week all through the season as hunter pressure correspondingly increases and decreases.

This means that during the hunting season, elk are repeatedly crossing the divide amidst open ridgeline roads and numerous cutting units. Consequently, vulnerability for elk is inherently high in the analysis area.

Security Levels- Elk security was assessed based on the current definition used on the Lolo and Dearlodge National Forests (Hillie and others, in preparation). Minimum security is defined as 250 acre or larger blocks of continuous hiding cover, at least 1/2 mile from an open road, with those areas representing at least 30% of the summer range. Hiding cover was identified based on tree heights, stocking levels, presence or absence of understory shrubs, and viewing angles from adjacent roads (Canfield and others, 1986). Security areas were plotted and measured independently for both the Lolo and Bitterroot portions of the analysis area. The Lolo portion of the analysis area currently has 21% of the area in security. The Bitterroot, including PRC and CIC land, has 12%. Total existing security for the 43,926 acre analysis area is 16%. Not only are these levels below the 30% minimum which is interpreted as necessary to meet Forest Plan standards (Lolo standard 26 and Bitterroot standards 13, 14, and 15), but most of the security areas are not located in the upper mesic basins that the elk prefer.

Assessment of Current Situation- Based on the previously discussed factors, it's probable that limited security is the biggest contributor (if not the sole contributor) to low bull carryover. This situation is substantially for both forest plans. Limited security may also be contributing to the low productivity problem.

Resolution Strategies- The team determined that improving the bull carryover situation would require a combination of long-term recruitment of security areas and reduced open road access. Alternative strategies were developed for both road management and security area recruitment.

Security Cover Recruitment

1A- Designate 5 large blocks of land (Figure 6) spanning the Sapphire divide which will provide, based on clearcut recovery rates, security within 10 years. Defer timber harvest from these areas. Defer timber harvest from all other existing security areas. At the end of the decade, security would occur on 32% of the analysis area (49% on the Lolo side and 13% on the Bitterroot side) if strict restrictions were applied on roads 2129, 4267, and 1339 (See alternative 2A).

1B- same as 1A but only 4 blocks of security would be protected along the divide (Figure 7). The Ambrose security area was deleted in this alternative because it's the only patch that doesn't span the divide and is very close to Ambrose Saddle. Hunter pressure would still be very high in this security area, regardless of road management restrictions. At the end of the

20- Existing travel plan strategy for both Forests.

** Note: Since Ambrose Saddle isn't a good physical location to close roads, it's assumed that the actual closures might be up to 1/2 mile north and south of the saddle.

Consequences

There are 24 different combinations of security and access management strategies. Consequences, in terms of how well a given combination resolves the bull carryover problem, are discussed for seven combinations. A matrix of consequences is enclosed in Table 1.

1A/2A- This combination would close all road systems during the hunting season excluding the Ambrose Creek Road to Ambrose Saddle. All five security cover recruitment areas would be deferred from further timber harvest. This combination provides the best elk security for the analysis area and would virtually guarantee increasingly higher levels of bull carryover. Security would increase to and stabilize at about 32% by the end of the decade. Timber harvest would be confined to those areas not designated for security cover recruitment. Hunters that prefer vehicle-oriented hunting would suffer a severe loss in opportunities especially considering that 75% of the Lolo portion of the Rock Creek drainage is in roadless allocations. For hunters that enjoy hiking moderate distances, there would be greatly improved opportunities. Unfortunately, there would be a lot of congestion near Ambrose Saddle on weekends during the hunting season.

1B/2D- This combination would close the Haacke Creek Road and that portion of 2129 past Cinnamon Bear Saddle during the hunting season. The Sawmill Gulch Loop would remain open. Timber harvest would be deferred indefinitely from four of the five security recruitment areas. Security would increase to and stabilize at about 24% for the analysis area. This combination might significantly improve the bull carryover situation although with less certainty than the 1A/2A combination.

1B/2B- This combination is not significantly different than the 1B/2D combination. Security would stabilize at about 24% for the analysis area. Since foot access along Rd 2129 for hikers/bikers/horseman is relatively easy, having the gate at Ambrose or Cinnamon Saddle makes little difference in terms of security.

1A/2G- This combination tests whether security recruitment without road management does any good. It does. Deferral of timber harvest from all five security recruitment areas under the existing travel plan would still provide 25% security by the end of the decade. Thus, it's an improvement over the existing situation and should equate to increased bull carryover. On the other hand, the location of roads 2129, 4267, and 1139 makes bull vulnerability high if these roads are left open.

1C/2G- This is the existing situation. Security cover represents 16% of the analysis area. Selection of this alternative would provide a longterm "spike-only" harvest that would generally be road-oriented.

decade, security would occur on 28% of the analysis area (41% on the Lolo side and 11% on the Bitterroot side) assuming that additional road access restrictions were applied.

1C- manage the area under the current security level. Defer harvest from existing areas of security cover. Security would remain at 16% of the analysis area (21% on the Lolo side and 12% on the Bitterroot side.)

For both 1A and 1B, timber harvest outside of existing and designated security recruitment areas would be done under normal summer range constraints, e.g. adequate cover/forage ratio, low open road density, and adequate spatial arrangement.

* Note: the large amount of corporate PCTC and CIC lands on the Bitterroot side precludes large amounts of security recruitment on that portion of the analysis area.

Access Management-

2A- (Figure 8) Close the Haacke Creek road (1339) during the hunting season 10/15-12/1. Close all roads at Ambrose Saddle** including the skyline road running north (2129) and the Sawmill Gulch loop (4267) during the general hunting season. Road 4267 would also be closed at Sawmill Saddle. If combined with the security recruitment alternatives 1A or 1B, this alternative would allow full recruitment of all security designated in 1A or 1B.

2B- (Figure 9) Close the Haacke Creek Road (1339) during the hunting season 10/15 to 12/1. Close the skyline road (2129) at Ambrose Saddle 10/15 to 12/1. If combined with alternative 1A or 1B, this would allow full recruitment of all security north of Ambrose Saddle. Because of Road 4267, however, which would remain open, the maximum security recruitment level would be reduced due to the impact of the open road.

2C- (Figure 10) Close the Haacke Creek Road (1339) during the hunting season 10/15 to 12/1. Close the Sawmill Saddle Loop (4267) at Ambrose and Sawmill Saddle 10/15-12/1. If combined with alternative 1A or 1B, this would allow full recruitment of all security south of Ambrose Saddle. Because of Road 2129, however, which would remain open, the maximum security recruitment level would be reduced.

2D- (Figure 11) Like alternative 2B, but the closure of Road 2129 would be at Cinnamon Bear Saddle instead of Ambrose Saddle.

2E- (Figure 12) Close the Haacke Creek Road (1339) during the hunting season. Close a 2-mile section of Sawmill loop (4267) in the west fork of Alder Creek 10/15 to-12/1 (Figure 3).

2F- (Figure 13) Close the Haacke Creek system (1339) during the hunting season. Otherwise, retain the existing travel plan strategy.

TABLE 1- CONSEQUENCES OF VARIOUS ALTERNATIVE COMBINATIONS

Access Option	Additional Rds closed 10/15-12/1		Security recruitment option			
	1339	2129	4267	1A security	1B security	1C security
2A	all	all	all	32%	28%	28%
2B	all	all	--	28%	24%	24%
2C	all	--	all	30%	27%	27%
2D	all	north	--	27%	24%	24%
		cinnamon				
		bear sad.				
2E	all	--	mid 2	26%	23%	23%
			miles			
			in w.			
			alder			
2F	all	--	--	26%	22%	22%
2G	--	--	--	25%	21%	21%

1A/2C- This combination protects all five security recruitment areas and closes the Sawmill Saddle Loop (4267). The Skyline road (2129) would remain open. This combination would provide 30% security at the end of the decade.

1A/2E- This combination is like 1A/2C except that the only a 2 mile segment of the Sawmill Saddle loop would be closed in the vicinity of the west fork of Alder Creek. This combination would provide 26% security. This combination is not appreciably better than 1A/2C (maximum security recruitment but without any additional road management) which retains 25%. The consensus of the biologists group was that closing the two mile segment of road would not contribute to security in the south end of the analysis area. Access for hunters would be very easy. This access restriction might actually erode security since more hunters would be hunting on foot and and harvest efficiency could increase. Generally road closures only slow the big game harvest when they impose a significant "hardship" on hunters by forcing them to walk several miles preferably at an adverse grade. A two mile restriction accessible at either end would not significantly deter hunters from accessing the area.

One alternative strategy the team didn't evaluate was a total deferral of timber harvest activity due to the poor existing security conditions. Since there are many places in the analysis area that won't provide security in the next decade regardless of whether or not harvest is done, the team felt no need to totally exclude timber harvest options.

Another option that wasn't considered was changing existing hunting season closures to yearlong closures. Since the problem appears to one of poor bull carryover, it was assumed that this option wouldn't increase carryover. There may be other reasons besides bull carryover that could justify the change to yearlong closures such as snag protection.

Obviously, there are countless other harvest/road management options. A matrix explaining these is included in Table 1. If you want to discuss this information, let me know.

MIKE HILLIS
Wildlife Biologist

cc. Omistson, Bitterroot NF
Ryke, "
Silvius, " Stevensville RD
Ford, " "
Doan
Firebaugh DTWP
Nielsen, DTWP

enclosures

FINAL Environmental Impact Statement

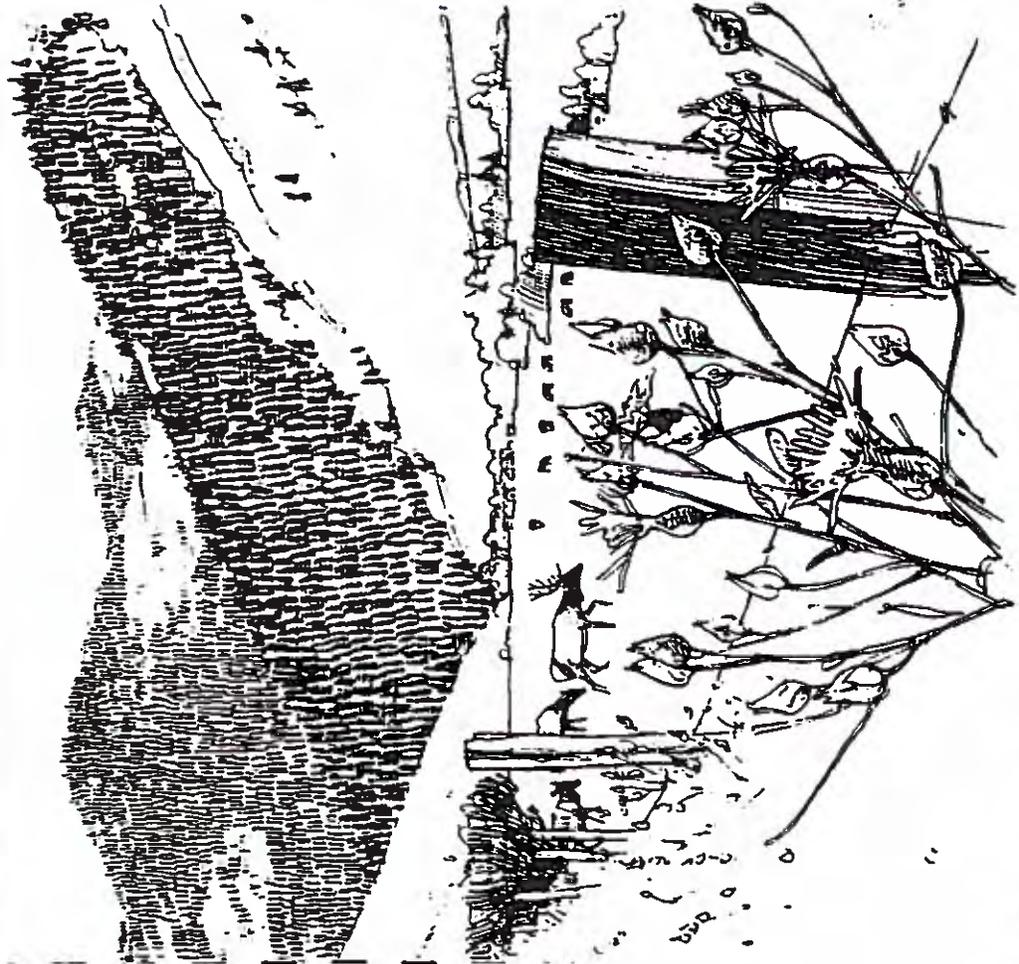
Noxious Weed Management

Amendment to Lolo National Forest Plan



United States
Department of
Agriculture
Forest Service
Lolo National Forest

March, 1987



Lolo National Forest

FINAL Environmental Impact Statement Noxious Weed Management

Amendment to: Lolo National Forest Land and Resource Management Plan (Forest Plan)

Missoula, Mineral, Sanders, Granite, Powell, Lewis and Clark,
Flathead, Ravalli, and Lake Counties,
Montana

Responsible Agency:	Responsible Official:	For Further Information, Contact:
USDA - Forest Service	Orville L. Daniels Forest Supervisor Lolo National Forest	Jerry Covault Lolo National Forest Building 24, Fort Missoula Missoula, MT 59801 (406) 329-3727

Abstract: This final environmental impact statement documents the analysis of five alternative noxious weed management programs for the Lolo National Forest. The selected alternative will amend the Lolo National Forest Land and Resource Management Plan, and will guide the planning and implementation of noxious weed management projects for the next decade or until the Forest Plan is revised. The alternatives are:

- A no action - continue current direction; discourage establishment of new weed species while tolerating those weeds already present. Support biological controls, employ limited physical control and no chemicals.
- B control weeds that affect adjacent landowners who have active weed management programs coordinated through a county weed board.
- C Preferred Alternative - control weeds that affect national forest resources or adjacent landowners who have active weed management programs coordinated through a county weed board.
- D control weeds that affect national forest resources or adjacent landowners who have active weed management programs coordinated through a county weed board, but do not use chemical herbicides.
- E attempt to eradicate or suppress all noxious weeds on the forest.

In all alternatives, management objectives and treatment methods are set for nine weed species according to the ecology and status of each weed, and the effectiveness of available control methods. Management objectives range from tolerate to eradicate, with containment or suppression as intermediate control levels. Control methods include various biological, mechanical, and chemical tools.

Wheelbarrow Cree Greenile fish passage

012-2020

Wildlife.

Nongame, predator, and Threatened and Endangered species are not significantly affected by noxious weeds. No wildlife would be significantly affected by proposed weed control methods (except for a positive effect where weed control might reduce losses in big game forage).

Under worst case assumptions, big game (elk) winter range forage production could be significantly reduced forest-wide in the next 50 years. The current state of knowledge does not allow the reliable translation of winter range forage losses into changes in elk population numbers.

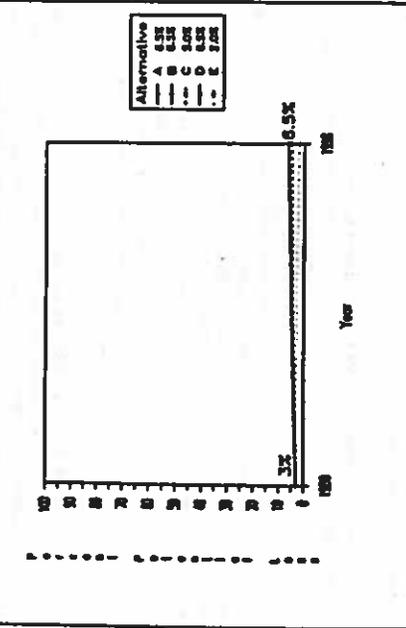
Estimated Forage Production Losses. Using worst-case assumptions, the current big game forage production loss due to weed infestations is about three percent. Under no action, forage loss in 50 years may increase to 18 percent of potential. Actual impacts on elk winter range productivity will likely be in the lower end of the 3-18 percent range. The estimated three percent loss in productivity is probably insignificant on a forest-wide basis. The

reason for this is the questionable role that winter forage has on winter survival, the mobility of elk and their ability to use alternative winter ranges, the availability of at least some surplus forage in portions of the winter range, and the ability for big game to utilize knapweed.

The figure below shows worst-case big game forage losses over the next decade for each alternative. With no action (Alternative A), loss in potential productivity might rise from the current three percent to 6.5 percent. Alternatives B and D would show similar losses, while Alternative C would go to five percent in ten years. Only Alternative E shows an improvement at the end of the decade, moving from the current three percent to a two percent loss.

Because the actual impact of weeds on elk winter survivability and population numbers is unknown, the Lolo is pursuing cooperative research proposals with other agencies including the Bureau of Land Management, the University of Montana, the Montana Department of Fish, Wildlife, and Parks, and the Rocky Mountain Elk Foundation.

Big Game Winter Range Forage --- Potential Loss



Worst-Case Loss in 1998 Potential Big Game Winter Range Forage, by Alternative

Wildlife.

Effects of Weeds.

Big Game and Predators. Issue #2 (page 1-6) can be divided into two wildlife sub-issues relating to the spread and control of noxious weeds. These are: 1) what effects do noxious weeds have on big game populations due to direct consumption of treated vegetation or secondary consumption by predators eating contaminated prey? Information needed to assess the big game issue includes: ■ what is the current population of big game on the forest and adjacent lands? ■ how much winter range is at high risk for weed invasion? ■ what are the current and projected (under no action) forage production losses due to weeds? ■ how much forage animals on winter range and spring greenup grass forage? ■ during a representative winter, how dependent are winter ranges? ■ at the Forest Plan desired big game population level, is there surplus winter range forage? ■ how will weed densities change over time?

Current Population. Elk and white-tailed deer numbers have increased substantially since 1979. About 12,500 elk now inhabit the Lolo National Forest and immediately adjacent lands.

Winter Range. The area of winter range is difficult to calculate since the upper boundaries expand or contract due to the severity of a given winter. The Forest Plan data base listed approximately 350,000 acres of potential winter range from which to select winter range management areas.

Losensky (1987) lists those habitat types where total or near total conversion to spotted knapweed or leafy spruce is possible. These habitat types occur on about 48,000 acres of winter range, 14 percent of the total covers about 42,000 acres.

Forage Production Losses and Potential to Regain. Impacts from long term spotted knapweed infestation are discussed in Wilford and others (1988). Based on those papers, it's assumed that long-term invasion of knapweed on Douglas fir/rough fescue sites will reduce productivity from 1,049 pounds per acre to 124 pounds. It's assumed conversely that repeated treatment with either picloram or 2,4-D will improve productivity back to pre-invasion levels. This assumption may overestimate the effectiveness of control actions.

Winter Range and Spring Greenup Grass Dependence. According to the Lolo Forest Plan, elk are on the winter range from December 1 to May 15. The degree to which elk rely on grasses for winter survival, even within habitats dominated by bunchgrasses, is highly debatable. In heavy snow years, elk may forage almost exclusively on adjacent shrubfields and avoid bunchgrass that is covered by snow. Thus, a given loss in bunchgrass productivity due to weed invasion may not necessarily result in a parallel reduction in elk productivity.

On a broader scale, total winter forage is probably not the only factor limiting elk winter survival. Many biologists have suggested that the condition of animals entering the winter (a function of summer range productivity), and the availability of winter thermal cover, may be as important as winter forage in determining winter survival rates. This further exemplifies the fact that reductions in grass production do not necessarily result in parallel losses in elk winter survival.

At the first hint of 'greenup' in early spring, even on winter ranges dominated by shrubs, elk use shifts to grasses. Spring (when elk fat reserves are lowest) is generally considered the most critical period to elk in terms of winter survival. Wet, cold weather during the spring and a delay in greenup may contribute more to winter mortality

than prolonged severe winter storms. Losses in grass production due to weed invasions may have the most impact on elk survival during this critical spring period.

While weeds have no effect on shrubs (Losensky 1987), they may reduce grass production, even on habitat types with low to moderate ecological risk to weed invasion. This could affect forage availability during the spring greenup period. Any such impacts should be limited to sites heavily disturbed by logging or grazing. For analysis purposes, this is assumed to be 25 percent of the acres in this category. According to Plister and others (1977), palatable grasses occur at about 16 percent ground coverage on Douglas-fir/ninebark (pinegrass) sites, which is a common shrub-producing site on the Lolo, and 66 percent for rough fescue habitat types. Since an acre of rough fescue type produces about 1049 pounds of forage per year, a direct proportion would indicate that shrub sites may produce grass forage at about 254 pounds per acre. Assuming a 50 percent reduction in production due to overstory shading by shrubs, grass production might more realistically be estimated at 127 pounds per acre. Since knapweed and spurge are both shade intolerant, the percent loss from invasion will be much less than that documented in bunchgrass sites. For analysis purposes, it's assumed that 10 percent of the productivity (or 13 pounds per acre) will be lost by weed invasion on shrub winter ranges. This loss will only, however, be experienced during the spring (from March 15 to May 15).

Knapweed Utilization. According to Lavelle (1988), elk and mule deer pellets contain an average of 2.5 percent knapweed on bunchgrass winter ranges that are heavily infested with knapweed. Knapweed is high in protein so it's assumed that consumption of knapweed is beneficial to the animal. In winter, the only portion of the knapweed plant that elk eat is the lower or seed head. Consequently, the 5 percent knapweed probably represents a maximum that will show up in the diet as elk forage for other more palatable plants.

Surplus Winter Range Forage. For analysis purposes, it's assumed that elk are nearing carrying capacity for the forest as a whole, based on both vegetative factors and adjacent landowner tolerance. However, since wild ungulates are seldom well distributed, there are definitely areas where surplus forage exists. Moderate levels of weed invasion can probably be accommodated by elk simply moving to underutilized areas. In some cases, however, any further losses in forage production have a greater risk of reducing carrying capacity.

Weed Density. Another variable in estimating effects on elk is the density of weed infestations. For instance, the current situation describes 225,000 acres as infested with spotted knapweed. Lightly infested areas have probably as yet suffered no loss in grass productivity. Conversely, some of those acres have no doubt converted to a "knapweed monoculture" with near total loss in grass productivity. Also, some areas that are lightly infested now will probably have increases in weed density over time.

For analysis purposes, it's assumed that heavy infestations are confined to areas heavily roaded, logged, and/or grazed. Within the 48,000 acres of high risk winter range, these conditions are assumed to occur on 25 percent of the area. For the other 75 percent, it's assumed that total infestation will occur within 50 years and that the rate of infestation will increase as a straight-line curve. These assumptions may overestimate the future increase in weed infestation densities. Researchers are guardedly optimistic about the long-term potential for biological controls to slow the spread and reduce the density of knapweed and leafy spurge infestations.

Estimated Forage Production Losses. Using the above assumptions, the current big game forage production loss due to weed infestations is about 3 percent. Under no action, forage loss in 50 years may increase to 18 percent of potential. (See Appendix H for calculations.) The estimated 3 percent loss in productivity is probably insignificant on a forest-wide basis. The reason for this is the questionable role that winter forage has on winter survival, the mobility of elk, and their ability to use alternative winter ranges, the availability of at least some surplus forage in portions of the winter range, and the ability for big game to utilize knapweed. On a local level, however, particularly considering that some winter ranges are all in high risk habitat types, there may be some local losses in big game populations as a result of knapweed infestation.

The 50 year scenario, which gives a potential loss of 18 percent productivity, can be equated with a "worst-case scenario" for big game impacts. If deer and elk are at capacity on all winter ranges, and if winter forage totally

determines winter survival, and if no biological controls are effective over the 50 year period, this worst-case reduction in forage productivity could hypothetically reduce the forest's elk carrying capacity by over 2,250 animals. However, making the leap from changes in grass forage productivity to changes in population levels is highly speculative. Too many other factors control actual big game populations levels, making discussion of changes in animal numbers inappropriate.

Even though discussion of animal numbers is speculative and inappropriate given the current state of knowledge, some will still want to frame the discussion in those terms. An earlier attempt to estimate the impact of weeds on big game winter range (Spoon and others 1983) is still widely quoted, with quotes focusing on changes in elk numbers. The worst-case scenario presented above (carrying capacity reduction of 2,250 elk) is about ten times higher than the figure of 220 estimated by Spoon and others (1983). That figure, however, was based only on rangelands infested at that time and ignored lands vulnerable to weed invasion. Additionally, no loss was attributed to lands with low or moderate risk of weed invasion.

Because the actual impact of weeds on elk winter survivability and population numbers is unknown, the Lolo is pursuing cooperative research proposals with other agencies including the Bureau of Land Management, the University of Montana, the Montana Department of Fish, Wildlife, and Parks, and the Rocky Mountain Elk Foundation.

Actual impacts on elk winter range productivity will likely be in the lower end of the 3-18 percent range. Recognizing all the assumptions here that tend to overestimate weed impacts on big game, as well as the fact that many other factors affect population levels, it is more reasonable to talk about changes in forage production potential rather than animal numbers. Approximate worst-case per annum impacts on forage productivity can be calculated by plotting a straight-line curve from 3 percent loss at 1990 to 18 percent loss at 2040 (Figure IV-10).

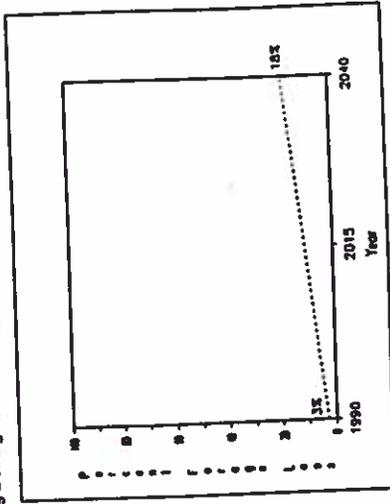


Figure IV-10. Worst-case Losses in Big Game Winter Range Forage Production

Nongame and Predators. Nongame species that may be affected by noxious weeds include seed eating animals such as pine siskins or voles which may be negatively impacted by losses of seed food sources. open-ground nesting birds such as nighthawks or horned larks, which may be negatively impacted by losses in ground cover, and predators such as red-tailed hawks or long-tailed weasels which may be subsequently

Table IV-2. Domestic Animals Representing Wild Species Groups (continued)

Domestic animals studied for herbicide toxicity	Comparable wild species group
rabbit	varying hare, western cottontail
cow	all wild ungulates including elk, deer, sheep, goats, and moose

Acute Oral Toxicity, LD₅₀'s (lethal dose needed to kill 50 percent of the population) for given species are listed in Table IV-3 for three herbicides under consideration. Toxicity varies depending on the form of 2,4-D used, in this case "acid" or "butyl ester". As a means of showing a worst-case scenario, figures depicted represent the most toxic form. Smaller LD₅₀ numbers indicate higher toxicity than the larger numbers.

Table IV-3. LD₅₀'s for Domestic Animals (mg/Kg)

Species	Picloram	2,4-D	Glyphosate
mouse	2,000-4,000	368	na
(rat)	8,200	375	4,320
dog	na	100	na
cat	na	820	na
chicken	6,000	541	15,000 no effect
(mallard)	>2,000	na	>2,000
pigeon	na	668	na
rabbit	2,000	424	3,800
cow	540	100	na
(mule deer)	na	400-800	na

The data in this table were taken from Sasman and others (1964) and the Southern Region Vegetation Management DES (USDA 1968, Appendix A, Section 6). The reader should consult these documents for thorough discussions of herbicide toxicity.

Since the lowest LD₅₀ values are for 2,4-D, a worst-case toxicity risk assessment can be calculated for the herbicide, and risks from the other two chemicals can be assumed to be somewhat less. (See Appendix H for discussion of the general animal toxicity of these herbicides.)

Two species groups appear to be most sensitive to 2,4-D. This includes the dog (representing wild canids) with an LD₅₀ of only 100 milligrams per kilogram of body weight, and the cow (representing wild ungulates) with an LD₅₀ of 100. According to a study done by Hoerger and Kenaga (1972), an application rate of one pound per acre results in a herbicide concentration on range grass of 125 mg/kg. Assume that at two pounds per acre application rates, the concentration would be 250 mg/kg. Assume also that animals feed immediately after spraying and on nothing but sprayed vegetation. Then the worst-case dose calculations for cattle and elk can be made as follows:

impacted by a loss of prey species. No literature is available in this area, and it is possible that seed production and ground cover provided by weeds could offset some of these effects.

Native grass seeds and associated forbs such as arrowleaf balsamroot provide a critical food source for many small birds and mammals. Reductions in grass and forb stocking due to noxious weed invasion may be accompanied by a reduction in nongame populations in heavily infested areas. The mobility of such species may initially allow them to relocate to noninfested areas without severe reductions in populations. Long term conversion of bunchgrass communities to a "weed monoculture" may eventually result in reductions in population densities of seed-eating animals. It has been suggested that knapweed and leafy spurge seeds are consumed by birds. This may offset the negative impact to some extent.

The impact on ground-nesting birds is difficult to determine. Knapweed, at moderate to high infestation levels, appears to provide better cover than native grasses, particularly when viewed from an angle. The visibility by a ground predator (such as a weasel) looking "through a knapweed stand" may be enhanced over native grasses due to the sparse structure of adult knapweed. Additionally, the sparse nature of knapweed heads probably makes ground-nesting birds more visible to avian predators. Therefore it appears likely that heavy infestations of noxious weeds may have a negative effect on ground-nesting birds. Ground-nesting birds that select overhead shrub cover for nesting (such as towhees) will probably be largely unaffected by weed invasions.

While weeds may increase the vulnerability of some prey species, long term reductions in prey species could ultimately have a slight negative effect on predators. Fortunately, the mobility of such species and their ability to select alternate prey species makes it unlikely that weeds will have a significant impact on small mammal and avian predators.

Effects of Herbicides.

Eating contaminated food is the main way that animals could receive doses of herbicides, either through direct consumption of herbicide-treated vegetation (such as an elk eating grass immediately after herbicide application) or by indirect consumption (such as a coyote eating a rabbit that has consumed herbicide-treated grass). Other methods of exposure such as dermal absorption after walking through treated vegetation would result in insignificant dose levels, so they are not included in this analysis.

There is abundant research on the effects of herbicides on domestic animals. Unfortunately, there is little information on the effects of herbicides on wild animals. As a means of resolving this data gap, data on selected domestic animals was assumed to be representative for similar wild species. These species group relationships are illustrated in Table IV-2.

Table IV-2. Domestic Animals Representing Wild Species Groups

Domestic animals studied for herbicide toxicity	Comparable wild species group
mouse	all small wild rodents
dog	coyotes, red foxes, wolves
cat	lions, bobcats
pigeon	seed eating songbirds

Wildlife

Cattle. Assuming that a steer eats 75 pounds of green forage/day (35 Kg/day) and weighs 1000 lbs. (450 Kg), the dosage is $250 \text{ mg/Kg} \times 35 \text{ Kg/steer} \times 19 \text{ mg/Kg} = 19 \text{ mg/Kg}$. This figure is only 19 percent of the LD_{50} , so 2,4-D at prescribed rates can thus be considered to be fairly non-toxic to cattle.

Elk. Assuming that an elk eats 35 pounds of green forage/day (16.4 Kg/day) and weighs 500 lbs. (230 Kg), the dosage is $250 \text{ mg/Kg} \times 16.4 \text{ Kg/elk} \times 18 \text{ mg/Kg} = 18 \text{ mg/Kg}$. This figure is only 18 percent of the LD_{50} , so assuming that elk have an LD_{50} comparable to cattle, 2,4-D at prescribed rates can be considered fairly non-toxic to elk.

Another concern with herbicide toxicity is long-term exposure. According to Monnig (1988), these three herbicides are excreted rather rapidly from tested animals, generally through the kidneys. Animals fed extremely high concentrations in laboratory conditions had either very low or undetectable concentrations in internal organs. Thus, it appears that warm blooded animals retain very little ingested herbicide.

Impacts on predators, represented by the dog, from secondary herbicide consumption can be calculated by the following process:

Predators. Based on Monnig's paper (1988), maximum muscle/organ concentrations of these herbicides is 0.1 mg/Kg. If a 50 lb. (23 Kg) coyote consumes 12 lbs. (5.5 Kg) of road kill elk in a given day, the dosage is calculated as $0.1 \text{ mg/Kg} \times 5.5 \text{ Kg/coyote} \times 23 \text{ Kg} = 0.2 \text{ mg/Kg}$. This represents less than 1/400th of the LD_{50} .

According to the Sassman and others (1984), 2,4-D breaks down very rapidly and seldom persists longer than a month. When ingested, it is not soluble in fats or lipids. Based on these factors, it's impossible for a canine predator to accumulate enough 2,4-D to approach the LD_{50} .

Since 2,4-D exposure to dogs and cows represents the highest toxicity of the three chemicals considered, and since proposed application rates and several conservative assumptions give maximum dosage rates at less than 20 percent of the LD_{50} , it appears that wildlife and domestic animals would not be significantly affected by any of the alternatives.

A herbicide spill could result in concentrations hundreds of times greater than that occurring in treated areas. Potentially, if an animal were to feed exclusively within a spill area for an extended period of time, the LD_{50} could be exceeded. It's assumed, however, that spills of concentrated herbicide will be immediately treated as a toxic waste spill, that the area impacted will be small, and that animals will be largely excluded due to human activity in the area. Consequently, spills do not comprise a significant risk to wildlife populations. Additionally, the number of animals affected by such an event would be small due to the limited local nature of such events.

Effects of Physical and Biological Control.

None of these methods would significantly affect wildlife, particularly on a forest-wide basis. Anecdotal reports suggest that small mammals and birds eat some of the insects used for biological control of weeds. This could be a beneficial source of food for these animals.

Threatened, Endangered, and Sensitive Animals. A biological evaluation conducted in informal consultation with the U.S. Fish and Wildlife Service, concluded that none of the alternatives would affect threatened, endangered, or sensitive animals. See Appendix H for a copy of the biological evaluation.

Phone conversation transcribed by DFWP, May 7, 1992.

Cletis Wandler
1210 Big Sky Lane
Stevensville, MT 59870

Requested copy of draft plan/EA--sent same day.

He was most concerned that a cooperative cattle grazing lease won't be helpful unless there is hunting access on Bolin's as well. He felt that an elk increase and arrangements with adjacent landowners are not positive for sportsmen unless the elk are accessible to hunt. Try to incorporate hunting access with a grazing lease. Otherwise, local residents will be mad.

He questioned the need for a winter closure to all public use. He walks and spends time among the elk frequently each winter. He can observe the elk through a spotting scope from his house as well. He has observed that the daily elk movement pattern is to feed in the north-end meadows at night and drift south to the timber to bed during daylight. This pattern is the same with or without people. He encounters people on the WMA on occasion, but not often.

He also fears that a jack-leg/rail fence will only last 10 years, especially if lodgepole is unpeeled. He cited local examples.

Phone conversation transcribed by DFWP, May 12, 1992.

Eugene Wandler
588 Wandler Lane
Stevensville

No record if EA was requested or sent, although the fact that the address was noted would indicate "yes" to both questions.

He doesn't want to see the WMA closed to all people in the winter. Elk feed in the open areas at night, so have access to forage where people are during daylight. There seem to be a lot of people using the area on horseback. He has been watching elk on the WMA for years and has begun videoing them.

More elk use the north end of the WMA since DFWP sprayed the knapweed. He would like to see more spraying--anything beats knapweed.

APPENDIX 4. LEGAL NOTICES OF DRAFT PLAN AND EA

PROOF OF PUBLICATION

Debbie Saunders

being first duly sworn

deposes and says, that the above named is a representative of THE MISSOULIAN, the publishers of The Missoulian, a daily newspaper of general circulation, printed and published in the City of Missoula, County of Missoula, State of Montana, and that the subjoined Threemile Wildlife Mgmt

a copy of which as printed is hereto attached, was printed and published in the regular and entire issue of said paper

SEE DATES

For _____ successive weeks, commencing on the _____ day of _____, 19 _____, and printed and published on the following dates thereafter, to wit: April 30 May 3 1992

PUBLIC COMMENT REQUESTED
The Dept. of Fish, Wildlife and Parks (DFWP) has drafted a revised management plan and EA for the Threemile Wildlife Management Area, Ravalli County. The plan proposes goals, objectives and strategies, discusses impacts and presents alternatives. DFWP prefers an alternative including limited prescribed cattle grazing on a small portion of the area; chemical, cultural and biological methods for weed control; limited burning, mowing and logging; increased monitoring of plant and animal communities; existing (unchanged) public access May 15-Dec 1; a winter closure to all public use; and continued public involvement. The draft plan was sent to local group leaders, and is available from DFWP, attn. Mike Thompson, 3201 Spangin Road, Missoula, 59801 (542-3500). Please comment by May 12, 1992.
9323 Apr 30 May 3 1992

Debbie Saunders

STATE OF MONTANA)
County of Missoula)

On this 4th day of May, 1992, before me, a notary public in and for said state, personally appeared

Debbie Saunders

known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same.

Paul Selbeck

Notary Public for the State of Montana
Residing at Missoula, Montana
My commission expires: 12/17/92

(Note: This proof should be attached to the original instrument of which publication is made.)

AFFIDAVIT OF PUBLICATION

STATE OF MONTANA) ss
County of Ravalli)

Victoria Shorter being
duly sworn, deposes and says that

she is the Editor of the
BITTERROOT STAR, a weekly
newspaper of general circulation,
published in Stevensville,
Ravalli County, Montana, and
that the subjoined notice, a
copy of which is hereto attached,
was published in the regular and
entire issue of said paper for

_____ successive weeks,
commencing on the _____ day of

_____ and published on the following dates
thereafter:

APRIL 29, 1992 - 243 ad

Signed Victoria Shorter

Subscribed and sworn to before me

this 1st day of May, 1992

Mary Ann Barrington

MARY ANN BARRINGTON
NOTARY PUBLIC for the State of Montana
Residing at Stevensville, Montana
My Commission Expires December 2, 1992

PUBLIC COMMENT REQUESTED
The Dept. of Fish, Wildlife and Parks (DFWP) has drafted a revised management plan and EA for the Threemile Wildlife Management Area, Ravalli County. The plan proposes goals, objectives and strategies, discusses impacts and presents alternatives. DFWP prefers an alternative including limited prescribed cattle grazing on a small portion of the area; chemical, cultural and biological methods for weed control; limited burning, mowing and logging; increased monitoring of plant and animal communities; existing (unchanged) public access May 15-Dec.1; a winter closure to all public use; and continued public involvement. The draft plan was sent to local group leaders, and is available from DFWP, attn. Mike Thompson, 3201 Spurgin Road, Missoula, 59801 (542-5500). Please comment by May 12, 1992.

