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Wildlife Biology - 9

A FISHER MANAGEMENT STRATEGY

FOR THE

NORTHERN ROCKY MOUNTAINS

USFS - NORTHERN REGION

92

DRAFT

PREPARED BY

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DISTRIBUTION:

Historically, fishers ranged across most of Canada and the Northern United States. In Idaho, fishers historically ranged through the northern portion of the State, south to Sawtooth, Ketchum and Alturas Lake (i.e., Blaine County)(Davis 1939). In Montana, fishers probably occurred throughout the Rocky Mountains (Hagmeir 1956). Early records indicated that fishers existed in northwest Wyoming, but as of the mid-1950s they were restricted to the Absaroka Range (Hagmeir 1956). The range of this apparent disjunct population may have extended into Montana. Fishers have always been relatively uncommon to rare in the Northern Rockies (Davis 1939, Hoffmann and Pattie 1968). They may have been extirpated from Montana by the 1930s (Hoffmann and Pattie 1968, Weckwerth and Wright 1968). Idaho's fisher population had declined to very low levels by the 1920s (Williams 1963). Furbearer surveys conducted from 1951-1958 failed to detect any evidence that fishers still existed in either Idaho (Williams 1962) or Montana (Weckwerth and Wright 1968).

The decline in fisher populations throughout North America during the late 1800s and early 1900s has been attributable to over-trapping, habitat loss through wildfire and logging, and nonselective predator control (Brander and Books 1973, Douglas and Strickland 1987). Over-harvesting of fishers by the fur industry, and the extensive forest fires which burned throughout Northern Idaho and Northwest Montana were probably the most important causitive factors which led to the decline of fishers in the Northern Rockies (Jones 1991).

Due to the apparent extirpation of fisher populations, the States of Idaho and Montana both initiated restocking programs in the late 1950s and early 1960s. Montana originally transplanted 36 fishers from British Columbia to western Montana during 1959-60 (Weckworth and Wright 1968). Of these animals, 9 were released in the Pink Creek drainage of Lincoln County, 15 near Holland Lake in Missoula County, and 12 near Moose Lake, Granite County; the Holland Lake and Pink Creek releases were believed to be the most successful (Weckworth and Wright 1968). In the late 1980s, fishers were still thought to be rare in western Montana (Roy 1991). Therefore, during 1988-91, Montana transplanted 3- additional animals from Minnesota and 78 animals from Wisconsin to the Bull River drainage of the Cabinet Mountain Range in the northwest portion of the State (Roy 1991, K. Sutherland, Univ. of Montana, pers. commun.). This project has yet to be proven a success.

In 1962, Idaho live-trapped 28 fishers in British Columbia and released 11 near Chamberlain Basin (Payette National Forest) and 17 near Red River (Nez Perce National Forest) (Williams 1963). An additional 11 animals were released near Powell (Clearwater National Forest) in 1963 (Williams 1963). The Idaho restocking efforts were apparently successful in that marten trappers reported inadvertent captures of fishers by the late 1970s. Capture locations were concentrated in the Elk City, Lochsa, and Pierce areas (Luque 1983). Luque (1983) estimated that the present distribution of fishers in Idaho occurs as far north as Lake Pend Orielle, near Sandpoint; west to Riggins, along the Salmon River; east to the Montana border; and south to Bear Valley, northeast of Stanley. The northern extent of the fisher distribution now extends nearly to the Canadian border.

overlaps the ranges of at least two adult females in fully occupied habitat (Banci 1989).

FOOD HABITS

Fishers select prey on the basis of availability (i.e., they are opportunistic) and their diets are typically diverse (Banci 1989). Staples in the fisher diet include snowshoe hare, porcupine, ungulate carrion, sciurids, voles, and birds (Banci 1989). Mammalian prey items (excluding ungulate carrion) having the highest frequency of occurrence in the diet of Idaho fishers were snowshoe hares, red squirrels, red-backed voles, and beaver (Jones 1991). The consumption of small mammals has been found to be negatively correlated with the consumption of snowshoe hares, suggesting that small mammals are important alternate prey during periods of low hare availability (Kuehn 1989). Similarly, Jones (in press) hypothesized that a change in prey availability may have at least partially explained an observed shift in habitat use between summer and winter. He suggested that fishers may rely more heavily on red squirrels in winter as voles become less available (Jones in press). Coulter (1966) also suggested that fisher predation of squirrels increased as winter progressed.

HABITAT RELATIONSHIPS

Landscape

A high degree of diversity and interspersion appears to be a critical habitat need of fishers (Banci 1989). One of the consequences of having relatively large home ranges is the availability of relatively diverse habitats. Similarly, because of the diversity in the fisher's diet, optimal habitat most likely includes a mixture of forest habitats (Arthur et al. 1989). Productive habitats in Maine consisted of second growth forests which were interspersed with small farms and pastures (Arthur 1987) suggesting that some degree of habitat fragmentation may be beneficial to fishers.

Furthermore, edges were used extensively by fishers in New Hampshire (Kelly 1987), Wisconsin (Johnson 1984; K. Sutherland, Univ. of Montana, pers. commun.), Ontario (Clem 1977), and Manitoba (Leonard 1980). Similarly, it was not uncommon for fishers in Idaho to be observed resting and hunting in forest stands adjacent to openings. In New Hampshire, fishers were shown to actually prefer edge habitats (defined as the ecotone within 100 ft of a forest type change)(Kelly 1977). Johnson (1984) speculated that fishers frequently sought out edge habitats or ecotones because they were more likely to encounter a more diverse prey base to meet their food requirements. These observations would suggest that fishers are not a "forest interior" species. However, Rosenberg and Raphael (1986) believed that fishers in California were very sensitive to forest fragmentation. Their study indicated that fishers were "area-sensitive" in that fisher occurrence was correlated with stand size, and that frequency of occurrence decreased sharply in stands <250 acres. They also reported that fisher frequency of occurrence also decreased abruptly when >50% of a forest stand adjoined a clearcut. The apparent contradictory reports regarding the fisher's sensitivity to fragmentation may be attributable to varying sampling

Johnson (1984) reported that fishers in Wisconsin rarely used monotypic-coniferous forests and suggested that fishers avoided such areas due to the lack of structural diversity. Californian fishers seemed to especially prefer forested stands comprised with multiple species (Buck et al. 1983). Similarly, reintroduced animals in Montana most frequently used mixed-conifer stands comprised with Douglas-fir, western larch, and ponderosa pine (Roy 1991). In Idaho, grand fir and Engelmann spruce appeared to dominate stands used by fishers during summer and accounted for approximately 73% of the mean total basal area, whereas in winter, grand fir, Engelmann spruce, and lodgepole pine dominated stands (Jones 1991). Fishers selected summer habitat in Idaho having a relatively high composition of moderate to large diameter spruce (≥8 in dbh), large diameter Douglas-fir (>18 in dbh), and small diameter Pacific yew (5-8 in dbh), whereas they avoided stands that had much of a lodgepole pine or ponderosa pine component. In winter, fishers selected stands having relatively high basal areas of Douglas-fir and lodgepole pine.

Mature to old-growth coniferous forests have commonly been described as optimal or preferred fisher habitat (deVos 1951, Coulter 1966, Ingram 1973, Kelly 1977, Schempf and White 1977, Buck 1982, Allen 1983, Raphael 1984, Mullis 1985, Rosenberg and Raphael 1986). In the Northern Rockies, Jones (1991) reported that although Idaho old-growth forests were preferred in summer and winter, young forests were the most preferred successional stage in winter. However, only 13% of summer and winter fisher observations occurred in old-growth forests (Jones 1991) suggesting that fishers are not dependent upon old-growth habitats. Similarly, Roy's (1991) study suggested that a similar habitat relationship may be developing for recently introduced animals in northwestern Montana. Fishers in his study (January-May) preferred dense stands of mixed-conifer and cedar-hemlock forest types which were of young to moderate age. It should also be noted that productive habitats in Maine, for a seemingly very productive population, consisted of predominantly second-growth forests (Arthur 1987). Perhaps, as Strickland et al. (1982) suggested, fishers are adaptable to virtually all forested habitats capable of supporting a suitable prey base.

Only 2 habitat relationship studies have been conducted in the Northern Rockies: one in northcentral Idaho (Jones 1991) and one in northwestern Montana (Roy 1991). The Montana study (Roy 1991) should be interpreted cautiously in that the animals were recently introduced and had only 1-2 years to adjust to their new environ at the time the study was conducted. In Idaho, there was a seasonal shift in the use of successional stages (Jones in press). During summer, 90% of all fisher use observations occurred in mature and old-growth forests. Summering animals preferred mature and old-growth forests, and avoided young, pole-sapling, and non-forest habitats. During winter, 54% of animal relocations occurred in mature and old-growth forests, whereas 46% of the observations occurred in young forests. Wintering animals preferred young forest and avoided non-forest and pole-sapling successional stages. Although, preference or avoidance was not detected for mature or old-growth successional stages, these types were represented on 53% of the winter use locations and should still be deemed important. It is also important to point out that the "young" forest classification used in Jones' (1991) study were predominantly "mature" stands of a early successional species- lodgepole pine. In Montana, Roy (1991) failed to detect a significant association between fisher use and size class of trees. However, he did observe that pole/small sawtimber and

medium sawtimber size classes contained the majority (76%) of winter and spring animal locations.

Arthur et al. (1989) and Jones (1991, in press) are the only existing studies which evaluated differences between hunting and resting habitat use patterns. In Maine, Arthur et al. (1989) reported that there was little evidence indicating that active fishers strongly selected for particular forest types. In Idaho, summer use of mature and old-growth forests was greater for resting activities (92%) than it was for hunting (74%) (Jones in press). Jones (in press) reported that a broader range of successional stages was used for hunting than for resting. Resting animals preferred mature forests whereas, non-forest, pole-sapling, and young forest types were avoided. Neither preference or avoidance was detected for old-growth forests. Summer hunting site observations also indicated that mature forests were preferred and non-forests avoided, but differences in use and availability were not detected in the other successional stages. The comparison of summer resting and hunting selection patterns suggested that mature and older forests were used more for resting, whereas pole-sapling and young forests were used more frequently for hunting. Differences in use of successional stages between winter hunting and resting activities were not observed. Jones (in press) concluded that fishers appeared to be more of a habitat generalist when hunting, as compared to resting. Arthur et al. (1989) also reported that active fishers used a wider variety of forest types than resting animals.

In general, fishers are believed to prefer forests with continuous canopy closure (Powell 1982, Johnson 1984) and avoid openings (deVos 1952, Coulter 1966, Kelly 1977, Buck 1982, Johnson 1984, Mullis 1985, Roy 1991, Jones 1991). The avoidance of openings may be somewhat dependent on season of the year and vegetation type. For example, Buck (1983) and Mullis (1985) believed that clearcuts having dense evergreen shrub cover may be important to fishers for foraging during winter. Similarly, Kelly (1977) observed that fishers avoided clearcuts in winter but not summer. He speculated that the cover provided by deciduous species during the summer may provide fishers with an adequate sense of security. Johnson (1984) also reported that fishers used habitats having little cover more frequently during summer when deciduous leaves provided concealment.

Fishers in New Hampshire selectively used forested habitats having $\geq$80% canopy cover, whereas they avoided stands having <80% canopy cover, especially those stands having <50% canopy cover. In California, preferred stands having canopy coverge exceeding 40% (Buck 1982). Jones (1991) reported that in Idaho, hunting animals seemed to be less selective for canopy closure than resting animals; active animals used a wider array of canopy closure classes than resting animals. He found no fisher rest sites within stands having $\leq$20% canopy cover. Further, he showed that resting animals preferred stands with $\geq$61% canopy cover, whereas fishers avoided stands with $\leq$40% canopy cover. Hunting animals rarely used stands with $\leq$40% canopy cover but significant avoidance was only detected for the $\leq$20% canopy cover class. Hunting animals were shown to only prefer stands having canopy cover which exceeded 80%.

Forested stands containing, or located immediately adjacent to riparian areas seem to be particular important to fishers. Fishers strongly selected wetland forest types in New Hampshire (Kelly 1977), Michigan (Powell 1982), Idaho (Jones 1991), and California (Buck 1982, Mullis 1985). Jones (1991) reported

that the fishers' preference for forested riparian areas was evident at several scales of habitat selection, and during both summer and winter seasons. In his study, approximately 50% and 75% of summer fisher observations were within 50 ft and 137 ft or water, respectively. The importance of riparian areas to fishers may be attributable to thermoregulation and/or prey availability. Streamside riparian areas are also used extensively as travel routes (deVos 1951, Buck 1982, Mullis 1985, Jones 1991).

Rest Sites

Fishers seem to be very opportunistic in there use of rest sites. Hollow logs (Seton 1926, deVos 1952, Bradle 1957, Kebbe 1961, Coulter 1966, Powell 1977, 1982; Jones 1991), tree cavities (Kebbe 1961, Ingram 1973, Powell 1977, 1982; Arthur 1987), and rocks (Seton 1926, deVos 1952, Kebbe 1961, Ingram 1973, Powell 1977, 1982; Raine 1981) appear to be the most frequently reported rest sites used by fishers. The use of ground burrows (Coulter 1966; Powell 1977, 1982, Arthur 1987), and fallen trees and brush piles (deVos 1952, Coulter 1966, Raine 1981, Johnson 1984, Jones 1991) as rest sites have also been frequently documented by researchers.

Resting sites within the canopy of live trees were used most often during summer and winter in Maine (Arthur et al. 1989), Wisconsin (Kohn et al. in press), Idaho (Jones 1991), and California (Buck et al. 1983). In Idaho, fishers most commonly rested in the canopies of live trees (77.9%), followed in importance by logs (14.5%) and snags (7.6%) (Jones 1991). Similarly, in California fishers utilized trees (65%), logs/slash (17%), snags (12%), and ground burrows (6%) (Buck et al. 1983). The average diameter of trees used for rest sites in Idaho was 22 in (range = 11-59 in) (Jones 1991). Trees used as rest sites in California averaged 45 in dbh (range = 20-64+ in dbh) (Buck et al. 1983). The average diameter (small end) of logs used as rest sites in Idaho was 21 in (range = 16-30 in) (Jones 1991).

Fishers commonly use witches brooms while resting in the canopy of live trees (Arthur et al. 1989, Jones 1991). Clumps of witches brooms were used as resting substrates in at least 68% of all observations of Idaho fishers resting in trees (Jones 1991). Selection of tree species per se used for resting sites may not be as important as the canopy structure of a tree or its location. For example, in Jones' (1991) Idaho study, tree rest sites were most commonly located in Engelmann spruce (63%). Witches brooms also seemed to be most prevalent in Engelmann spruce. Furthermore, in Jones' study area, Engelmann spruce was generally located within forested riparian areas. In all likelihood, fishers probably selected forested riparian zones first, then searched the available trees for suitable resting substrates. Thus, any species having witches brooms could potentially be used for a rest site.

Selection of rest sites may be partially a function of ambient temperature. Use of ground burrows in Maine (Arthur et al. 1989) and hollow logs in Idaho (Jones 1991) increased during winter. Arthur (1986) reported that fishers usually rested in ground burrows when the minimum temperatures consistently dropped below 32° F., especially when snow was present. It appears that the use of rest sites on the ground (i.e., burrows, logs, and subnivean sites) may have important implications for thermoregulatory requirements during periods of cold stress.

INTERIM HABITAT MANAGEMENT STANDARDS AND GUIDELINES

THE CONCERN

Fishers are believed to be at least partially tied to mature and old-growth forests in western habitats. The availability of such forests are being decreased within the fishers' current distribution. The continuation of logging practices will likely result in mature and old-growth forests becoming fragmented into smaller parcels, increasingly isolated (at least temporarily) within a matrix of unsuitable habitats across the landscape.

Fisher populations are highly vulnerable to over-trapping, especially in habitats where prey productivity is relatively low, and where environments are relatively harsh (ie., long, cold winters in association with deep snows). Even in areas where the fisher is legally protected from trapping, incidental mortality attributable to trapping efforts meant for other furbearers may be high enough to limit population growth. As timber management proceeds, more and more of the landscape is penetrated by roads, increasing trapper access, and reducing the proportion of the landscape which is relatively secure from trapping pressure.

GOALS

In general, our goal is to maintain, over the forested landscape, a population fo fishers that has a high probability of continued existence throughout its range in the Northern Rockies. However, the fisher is classified as a furbearer in both Idaho and Montana. Consequently, the States have primary responsibility in managing the exploitation of fisher populations. Thus, the goal of these standards and guidelines becomes simply to protect fisher habitat in amounts and distribution that will adequately ensure their long-term survival throughout their range in the Northern Rockies.

OBJECTIVES

1. Manage for the continued distribution of fishers throughout their current range.

2. Manage habitat so that subpopulations of fishers interact genetically and demographically, to minimize risks to long-term viability.

3. Upon completion of a Regional conservation strategy, manage for the restoration of habitats and fishers in indentified key areas within the fishers' historic range.

4. Monitor and conduct research to evaluate whether the goals and objectives are being met and to facilitate adaptive management.

METHODS AND ASSUMPTIONS

These standards and guidelines will be considered to be an interim direction until the time when a Regional conservation strategy can be developed. A

involving the following:

1. Delineation of potential habitat (i.e., suitable habitat types) through out the Northern Region.

2. Delineation of young, mature, and old-growth stages of suitable habitats.

3. Mapping of administrative reserves.
   a. Wilderness and proposed wilderness.
   b. National Parks, wildlife refuges, etc.
   c. Lands allocated as being unsuitable for timber management.

4. Identification of linkages and key areas deemed important to maintain genetic and demographic interactions of subpopulations.

The following habitat management standards and guidlines were developed using a conservative approach. Until the above factors have been assessed, quantified, and mapped, we have adopted an objective of maintaining the suitability of the entire landscape for fishers as long as it is comprised of potential habitat and it is within their historic range.

We presently lack the required information necessary to develop an in-depth conservation strategy for fishers in the Northern Rockies. Therefore, we may best be able to address the habitat needs of fishers by applying a coarse-filter approach (Hunter 1991). A coarse-filter approach would involve managing for: 1) a certain composition of the landscape in various successional stages; 2) a specific frequency distribution of various patch sizes; and 3) linkages across the landscape (Jones in press). Application of a coarse-filter stategy will require site specific analysis by physiographic province or some smaller landscape unit. The following standards and guidelines should provid for the habitat needs of fishers, and should be applied in the absence of a coarse-filter analysis.

Fisher habitat in the Northern Rockies is predominantly contained within the grand fir, cedar, hemlock, spruce, and lower subalpine fir vegetation zones (Pfister et al. 1977, Cooper et al. 1987). Fishers in northcentral Idaho occurred within an elevational band ranging from 3,400 ft. to 6,300 ft. (Jones 1991). Consequently, these standards and guidelines only apply to these vegetation and elevational zones.

Planning for the long-term viability of fishers will require both population management and habitat management strategies. A population conservation stategy is likely the most critical of the two. Historical evidence suggests that moderate to high trapping pressure can easily cause local extinction of fisher populations, regardless of the existence of a thoroughly designed and well implemented habitat conservation strategy. Fishers were extirpated from much of their historical range prior to man having much influence upon the landscape composition and structure. In that the States have the primary responsibility in managing populations, these standards and guidelines will be directly oriented towards habitat conservation, and will only address the indirect relationships between habitat and population management.

The habitat management standards and guidelines incorporate a hierachial approach addressing management direction at both the landscape and stand levels. The completion of the over-all conservation strategy will likely add a regional level.

Landscape

Management at a landscape scale should incorporate a variety of young to mid-successional stages, to promote a diversity of prey species, in conjunction with late successional stages to provide key resting habitat (Jones 1991). Several assumptions were used in the development of a prescription for the desired composition of successional stages across the landscape (Table 2). First, females, due to their increased energy drain attributable to the raising of kits, likely are more sensitive to landscape composition. Reproductive success is probably at least partially limited by the ability of females to successfully obtain the required resources and minimize energy expenditure during the kit rearing period. The limited data from northcentral Idaho (Jones 1991) suggests that there may be an inverse relationship between female home-range size and the percentage of the home range comprised by mature and old-growth forests ($r = -0.86$, $p = ?$). Second, the minimum amount of mature and old-growth forests to be maintained across the landscape was estimated from the known quantities of 75% of the marked females from the Idaho fisher study (Jones 1991).

Table 2. Desired composition of successional stages across the landscape.

Succesional Stage	Landscape Composition
Mature and old-growth[1]	65-75%
Young forests	10-25%
Pole/sapling and younger[2]	10-25%

[1] At least 120 years of age.
[2] Generally less than 50 years of age. Includes natural openings as well.

Rosenberg and Raphael (1986) reported that the probability of fishers using a late-seral patch was positively correlated with patch area. Fisher frequency of occurrence peaked in 125-250 ac stands. Stands smaller than 62 ac (M.G. Raphael, U.S. For. Serv., pers. commun.), or stands having >75% of their perimeter adjacent to clearcuts (Rosenberg and Raphael 1986) would not likely be used by fishers. Thus, stand area may be less important in determining the probability of fisher occurrence than stand insularity.

Mature and old-growth stands should be a minimum of 125 acres and should have a minimum of 50% of their perimeter adjacent to forested sites (i.e., pole stage or older with at least 40% canopy cover).

Connectivity of preferred habitats (i.e., mature and old-growth forests, forested riparian areas) will facilitate the landscape's ability to sustain fisher populations. Substantial evidence indicates that fishers use stream courses extensively as travel corridors through forested habitats (de Vos 1951, Buck 1982, Mullis 1985, Jones 1991).

To the extent possible, all mature and older forests should be interconnected by travel corridors comprised of closed-canopy forest (≥40% canopy cover). Corridors should ideally be located along streamside riparian areas.

Gaps (i.e., areas having less than 40% canopy cover) within potential travel corridors should not exceed 300 ft. Forested saddles, linking adjacent drainages which could likely serve as potential travel routes, may be especially important for fisher movements. At least 40% canopy cover should be maintained in these areas.

Roads

The concern in respect to roads is related to fisher vulnerability to trapping; not disturbance associated with vehicular traffic. Roads are directly correlated with trapper access, and consequently, fisher vulnerability. Even in areas where fishers can not be legally trapped, trapping pressure for other furbearers (i.e., marten) may contribute significantly to fisher mortality. Roads bissecting or adjacent to preferred habitats (i.e., drainage bottoms) have the greatest potential of increasing a trapper's probability of encountering fishers.

Construction of loop roads should be discouraged.

Where possible, avoid locating roads along or through drainage bottoms and saddles.

Use temporary roads when possible; obliterate, return to contour, and litter with ROW slash to discourage snowmobile access. Specified roads should also be littered with slash when feasible.

Stand

Uneven-aged management prescriptions are preferred for maintaining fisher habitat at the stand level. Powell (1982) reported that selectively cut harvest units were not avoided by fishers. Similarly, Buck (1982) and Mullis (1985) documented fishers resting in selectively logged harvest units where <20% of the canopy cover had been removed. Arthur et al. (1989) reported that

would not decrease fisher habitat quality in Maine.

Only uneven-aged timber management prescriptions should be permitted in areas of mature and old-growth forests to be managed for fishers (i.e., used towards the proportion of the landscape in older forests). For group select harvest prescriptions, openings should not exceed 1.0 acre in size. Individual tree select prescriptions should approximate the stand structure outlined in Table 3. The over-all objective would be to not significantly alter the characteristics of the stand structure.

Table 3. Habitat structure required to maintain quality fisher habitat (from Jones 1991).

Variable	Value
Canopy Cover	70%
Live Trees	
1-4 in dbh	597/ac
5-8 in dbh	76/ac
9-13 in dbh	97/ac
14-18 in dbh	43/ac
19-24 in dbh	22/ac
≥25 in dbh	11/ac
Snags	
6-9 in dbh	28/ac
10-13 in dbh	18/ac
14-20 in dbh	8/ac
≥ 21 in dbh	4/ac
Logs	
6-8 in diameter (small end)	567 cu ft/ac
9-13 in diameter	1093 cu ft/ac
14-18 in diameter	811 cu ft/ac
19-21 in diameter	0 cu ft/ac
≥ 22 in diameter	506 cu ft/ac

Marking guidelines should favor the retention of large diameter spruce trees, especially those containing witches brooms.

Stands containing, or located immediately adjacent to, riparian areas appear to be particularly important to fishers (Jones 1991). Fishers in the Northern Rockies may be dependent on forested riparian habitats (Jones 1991). These important areas would be most likely found within the Abies grandis/Senecio triangularis, Thuja plicata/Athyrium filix-femina, Thuja plicata/Oplopanax horridum, Abies lasiocarpa/Streptopus amplexifolius, Abies lasiocarpa/Calamagrostis canadensis, Abies lasiocarpa/Oplopanax horridum, and

Picea/Equisetum arvense habitat types (Pfister et al. 1977, Cooper et al. 1987).

Stands within the above habitat types should be managed conservatively, and only treated using uneven-age silvicultural prescriptions. Individual tree select and group select harvest presciptions are preferred if management is deemed necessary. Groups should be no larger than 0.25-0.50 ac in size. A minimum of 70% canopy cover should be maintained with individual tree select harvest prescriptions.

Fisher habitat capability would be decreased at the stand scale for at least 50 years if clearcut harvest prescriptions were implemented. Although fishers in Idaho (Jones 1991) and Montana (Roy 1991) seem to prefer young forests in winter, those stands regenerated under natural processes (i.e., fire) and retained some of the structural characteristics associated with older forests (i.e., a few large diameter trees, snags, and logs).

In stands treated with even-aged silvicultural prescriptions:

1) Retain at least 5 trees/ac ($\geq$18 in. dbh) for future snag and den log recruitment. Preferred species are grand fir and cedar.

2) Retain $\geq$20-40 tons/ac of large diameter logs for prey habitat and future rest sites.

3) Retain cull log decks and a few slash piles (1 per 5 acres) for potential fisher rest sites and prey habitat.

LITERATURE CITED

[Yet to be completed]