



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Fish and Wildlife Enhancement
Federal Bldg., U.S. Courthouse
301 South Park
P.O. Box 10023

Helena, Montana 59626

RECEIVED

MAR 15 1988

FLATHEAD N.F.

March 14, 1988

IN REPLY REFER TO:

M.19 Flathead NF/Noisy Face
(6-MT-88-F-001)

Mr. John W. Mumma, Regional Forester
U.S. Forest Service, Region 1
Federal Building, P.O. Box 7669
Missoula, Montana 59807

Dear Mr. Mumma:

This is the Fish and Wildlife Service's (Service) biological opinion prepared in response to your March 7, 1988 request for formal consultation on the recreation management direction for the Noisy Face Geographic Unit located on the Flathead National Forest. The Forest's June 22, 1987, biological evaluation concluded a "may affect" on the grizzly bear (Ursus arctos horribilis), and a "will not effect" on the bald eagle (Haliaeetus leucocephalus), peregrine falcon (Falco peregrinus), and gray wolf (Canis lupus irremotus). The Service concurs with these conclusions.

On July 30, 1987, the Forest Service requested formal consultation on a proposed alternative for recreation management direction for the Noisy Face Geographical Unit. The Service provided you a draft jeopardy biological opinion for review on November 16, 1987 on that alternative. Formal consultation was subsequently terminated by the Forest Service on January 27, 1988. The Forest Service proposed alternative was subsequently modified taking into consideration the draft jeopardy opinion.

This biological opinion considers the effects that the revised proposed alternative for recreation management for the Noisy Face Geographic Unit will have on the grizzly bear, and not the overall environmental acceptability of the proposed action. The Service has examined the proposed action in accordance with the procedural regulations governing interagency cooperation under Section 7 of the Endangered Species Act of 1973, as amended (50 CFR 402 and USC 1531 et. seq.).

BIOLOGICAL OPINION

It is the Service's biological opinion that the proposed recreation management direction for the Noisy Face Geographic Unit is not likely to jeopardize the continued existence of the grizzly bear.

PROJECT DESCRIPTION

The following excerpt from the Proposed Revised Decision Notice, Recreation Management Direction for the Noisy Face Geographic Unit (revised February 2, 1988) outlines the proposed action:

A. Management Direction for System Trails

1. Close Trail #544 (Wolf Creek-Broken Leg) and Trail #187 (Crater Notch) to motorized use year long.
2. Close Trails #7, #8, #68, and #717 to motorized use year long, except snowmobiles in the Camp Misery Area.
3. Trail #37 (Peters Ridge) is open to motorized use from July 1 to March 31. Closed to motorized use April 1 to July 1.
4. Trails #725 (Switchback), #5 (Strawberry Lake), #20 (Hemler Creek) and #7 (Alpine 7 north and south of Jewel Basin) are open year long for motor vehicles less than 40 inches wide.
5. Sign the Strawberry Lake Trail (#5) to inform users that it is open to a variety of users (i.e, hikers, horses, and motor vehicles) and instruct users how to react when horses are encountered.
6. Trail #293 is open to motor vehicles less than 40 inches wide from July 1 through November 30.

B. Management Direction for System Roads

1. Bear Creek area--move the gate on the Bear Creek Road at Peterson Creek back to the Wolf Creek Road junction and close the area behind the gate to motorized use from December 1 to July 1.
2. Close the Peters Ridge Road #5388 at the lower end of Section 16 from April 1 to July 1 to all motorized use.
3. Camp Misery area--open Road #5392 from lower parking area to upper parking area to vehicles less than 40 inches wide year long and to other vehicles by permit, as long as the road is passable.

C. Management Direction for Non-System Roads and Trails

Approximately 13 miles will be retained for use by ORV's and other forest users. Routes will not be marked on the ground. Motorized use will be restricted from April 1 to July 1 and from September 1 to November 30, in the Krause Creek-Peters Ridge Area (see map).

D. Management Direction for Occasional Events

1. Follow Forest Plan direction which states, "Occasional Events - Handle requests such as for cross-country ski or snowmobile races, youth or church organization outings, and recreation trails on a

case-by-case basis. Do not allow permanent structural facilities to be built or permit use where unacceptable resource damage could occur" (page II-49).

2. In addition, permits in this area will adhere to the following guidelines:

- a. Permits for competitive motorized events will not be issued.
- b. Permits will not be issued between April 1 to July 1 and September 1 to November 30.
- c. Permits will be confined to identified routes, trails, and/or roads.
- d. If private or State land is involved, the permission of the other landowners is required.

E. Area Closure

In the Krause Creek-Peters Ridge area motorized vehicle use will be restricted from April 1 to July 1 and from September 1 to November 30, except Peters Ridge Road #5388 and Trail #37 will remain open during September 1 to November 30, period.

In the Bear Creek area which lies south of Trail #544 (Wolf Creek Trail), continue the area closure to all motorized use from October 15 to November 30 as outlined in the 1987 Flathead National Forest Travel Plan. Road #5398 (Bear Creek Road) and Trail #293 (Peterson Creek Trail) will remain open to motorized use from July 2 to November 30, even though they are within this area closure.

BASIS OF OPINION

The Noisy Face Geographic Unit, located on the west side of the Swan Mountain Range, is within the grizzly bear recovery zone and contains 18,615 acres of management situation I and 6,885 acres of management situation II (Figure 1) as defined by the Interagency Grizzly Bear Management Guidelines (51 FR 42863). This stratification has been incorporated into the final Flathead National Forest Plan and was, in part, the basis for the non-jeopardy biological opinion issued on the Forest Plan on May 15, 1985. The May 15, 1985 opinion states that, "this opinion is contingent upon the guidelines for management situation I, II, and III being fully implemented and that the stratification submitted in this consultation remains in effect." The Interagency Grizzly Bear Management Guidelines indicate that within situation I, "management decisions will favor the needs of the grizzly bear when grizzly habitat and other land use values compete...grizzly-human conflicts will be resolved in favor of grizzlies." Within situation II, "the grizzly bear is an important but not the primary use in the area...when grizzly populations and/or grizzly habitat use and other land use needs are mutually exclusive the other land use needs may prevail in management considerations."

Through informal consultation, the Service has expressed concerns regarding the level of off-road vehicle (ORV) use occurring in the Noisy Face Geographic Unit due to the extensive network of trails created by past logging activities and the need for a spring area closure to avoid displacing grizzlies from critical spring feeding sites. Activities by motorcycles and firewood cutters have helped to develop and maintain an extensive trail network that hinders effective road control and reduces habitat use by sensitive wildlife species (biological evaluation, page 5).

Research has clearly shown the adverse effects motorized use has upon the grizzly bear. Mattson and Henry (1986) showed that grizzly bear use of elk and bison carcasses was virtually eliminated within three miles of a development having motorized activities associated with it in Yellowstone National Park during the spring. Whereas, beyond three miles of the development, bears used between 50 percent to 100 percent of available carcasses. These results suggest that human activities including motorized activities, had a strong impact on grizzly use of an important spring food source (ungulate carcasses). Published literature also shows that bears generally avoid areas 500 meters on each side of a road. Mattson et al. (1986) has shown that grizzly use of habitat decreases significantly within 600 meters of either side of a road. Aune et al. (1986) showed that noise associated with motorized equipment contributes substantially to the displacement of bears from preferred habitats in that grizzlies generally avoid areas 500 meters on each side of a road. Shallenburger and Jonkel (1980) showed that grizzlies avoid roads and trail-heads. Brody (1984) has indicated that black bears in southern Appalachia begin to avoid Forest Service roads at a road density of 0.8 miles/square mile.

The cumulative effects analysis conducted by the Flathead National Forest demonstrates that significant loss of habitat use is occurring throughout the analysis area due to displacement by road and trail use impacts. Losses of 32 percent for spring range, 43 percent for summer ranges, and 34 percent for fall range is occurring from the present density of roads and trails. The resultant habitat effectiveness (existing situation) for each of the subunits within the Noisy Face Geographic Unit is displayed in Table 1. These ratings indicate that Subunit 2 (Middle Unit) is very heavily impacted due to the present network of non-system roads and trails open to ORV use.

To help assess the effects of the revised proposed alternative, we evaluated the alternative to see how it conforms to the Flathead National Forest Plan's standards and guidelines for grizzly bear management and the Interagency Grizzly Bear Guidelines, and secondly, to see how it compares to habitat effectiveness levels commonly applied and accepted in wildlife management.

The road management standard in the Flathead National Forest Plan (page II-30) is an open road density of one mile/square mile of area and is applied to all districts and geographic units having grizzly bear management direction (biological evaluation, Flathead National Forest Travel Map, April 27, 1987). This open road standard of one mile/square mile of area is equivalent to an effect factor of 1.0 as defined and calculated in the Flathead National Forest biological evaluation, Recreation Use on the Noisy Face Geographic Unit, June 22, 1987. Thus, an analysis area that has an effect factor of 1.0 or less would be in compliance with the Forest Plan standard for open road densities.

The Flathead National Forest, in their biological evaluation manually applied a cumulative effects analysis on several alternatives for recreation management in the Noisy Face Geographic Unit. Using data from this analysis, we used regression analysis to show the relationship between miles of roads and trails and the effect factor (equivalent road density) and the relationship between the effect factor and habitat effectiveness. Knowing these relationships and given the number of miles of roads and trails in an analysis area, we can predict the habitat effectiveness and also show the change in habitat effectiveness that results by closing a specified number of miles of roads and trails. The equations describing these relationships and which were used to calculate the effect factor and habitat effectiveness for the revised proposed alternative in this biological opinion are shown in Appendix A.

Threshold values for habitat effectiveness to assure that levels of human activity are compatible with grizzly recovery objectives have not as yet been determined for the Northern Continental Divide Ecosystem. A habitat effectiveness threshold of 70 percent is used in the Kootenai National Forest Cumulative Effects Analysis process (Christensen and Madel 1982). An 80 percent habitat effectiveness rating was discussed by the Yellowstone Subcommittee for use as a threshold in the Yellowstone Ecosystem, but rejected until the cumulative effects model for that ecosystem can be validated and tested. Habitat effectiveness of 70 to 80 percent is commonly used as a management tool for nonlisted species such as elk. Thus, in this biological opinion we used a habitat effectiveness rating of 70 percent to judge the suitability of habitat management. Table 1 shows the habitat effectiveness level calculated for each of the subunits in the Noisy Face Geographic Unit for the revised proposed alternative.

The cumulative effects model utilizing the grizzly bear habitat component mapping demonstrates that Subunit 2 (Middle Unit) has the highest spring habitat value, while Subunit 1 (North Unit) has the lowest spring habitat value (Table 2). Accordingly, approximately 83 percent of Subunit 2 and all of Subunit 3 has been mapped as situation I habitat, whereas all of Subunit 1 has been mapped as situation II habitat (Figure 1). Based upon habitat quality and the management direction for situation I and II (Interagency Grizzly Bear Guidelines), grizzly bear management emphasis should be placed in Subunits 2 and 3.

The drainage areas and benches south of Peters Ridge supports moist site tree species such as hemlock and grand fir, and moist site shrubs such as birch, maple, and alder. Due to the topographical relief (benching) in this area, seeps, springs, and wet meadows which support high value bear foods are common. The general southwest aspect of this area contributes to an early snow-melt and early green-up of forbes, grasses, and other key bear foods. Similarly, avalanche chutes in the Krause and Noisy Creek drainages also green-up earlier than many other areas in the northern Swan Range.

Under the revised proposed alternative, a spring closure to motorized use of the areas south of Peters Ridge from April 1 to July 1 (as depicted in Figure 2) was designed to insure grizzly use of these important spring habitats and to conform with the management direction for situation I. Research in the Mission Mountains (Servheen 1981) has shown that by mid-June grizzlies generally have moved to their upper elevational summer ranges. The general

pattern of elevational movements of grizzlies by season is shown in Figure 3. Movement to low elevation fall range usually begins soon after the first hard frost at high elevations in late August which kill the available succulent vegetation and influence plant food availability in these areas. About mid-November as autumn foods become less available and bears attain the necessary fat level for winter denning, they begin to move to den sites in the upper elevational ranges.

The high density of roads and trails (4.2 miles/square mile) in the low elevation areas (below 4,700 feet) in Subunit 2 that are open to motorized use between July 1 and August 31 under the revised proposed alternative will have little or no impact to grizzlies because their elevational movements separate them from the ORV activity occurring in the low elevations. The road and trail density (1.76 miles/square mile) in the upper elevations (above 4,700 feet) being used by grizzlies during the summer period equates to an effect factor of 0.74, or a habitat effectiveness level of 69 percent.

The closure of all non-system trails in Subunit 2 to motorized use in the fall (September 1 - November 30) results in approximately 21.8 miles of roads and trails in the Subunit, or a density of 1.7 miles/square mile. This density equates to an effect factor of 0.7, or a 71 percent habitat effectiveness level.

Based on the above considerations, the Service concludes that the expected impacts on grizzly bear numbers, reproduction, and distribution from implementing the proposed Recreation Management Direction for the Noisy Face Geographic Unit should not be at a level that is likely to jeopardize the species.

INCIDENTAL TAKE

Section 9 of the Endangered Species Act prohibits any taking (killing, harassment, or harming) of listed species without special exemption. Under the terms of Section 7(b)(4) of the Act, taking that is incidental to, and not a purpose of, the Agency action is not considered taking within the terms of the Act, provided that such taking does not violate Section 7(a)(2). The anticipated level of incidental take resulting in the death of a grizzly under the proposed alternative is zero. This biological opinion has concluded that the anticipated incidental take through harassment and harm due to displacement of bears is not at a level that would violate Section 7(a)(2).

Taking other than that described in this opinion must be in conformance with the 50 CFR 517.40(b) and shall be in accordance with the Interagency Grizzly Bear Guidelines (51 FR 42863).

CONCLUSION

This completes the Service's biological opinion on the proposed recreation management direction for the Noisy Face Geographic Unit located on the Flathead National Forest. This opinion is based on the information contained in the Proposed Decision Notice, Recreation Management Direction for the Noisy Face Geographic Unit (revised 2/2/88) and Forest Service biological evaluation. If new information reveals effects of the action or if the proposed action is modified in any way which may affect the grizzly bear in a manner or

to an extent not considered in this opinion, formal Section 7 consultation should be reinitiated. Section 7 consultation should also be reinitiated if the amount or extent of incidental take should exceed that identified in this opinion or if new species should be listed that may be affected by the proposed action.

Sincerely,



Wayne G. Brewster
State Supervisor
Montana State Office

Enclosures

cc: Director (OES), FWS, Washington, DC
ARD, FWE-60120, FWS, RO, Denver, CO
Grizzly Bear Recovery Coordinator, Missoula, MT
✓ Forest Supervisor, Flathead NF, Kalispell, MT

DRHarms/clh

"Take Pride in America"

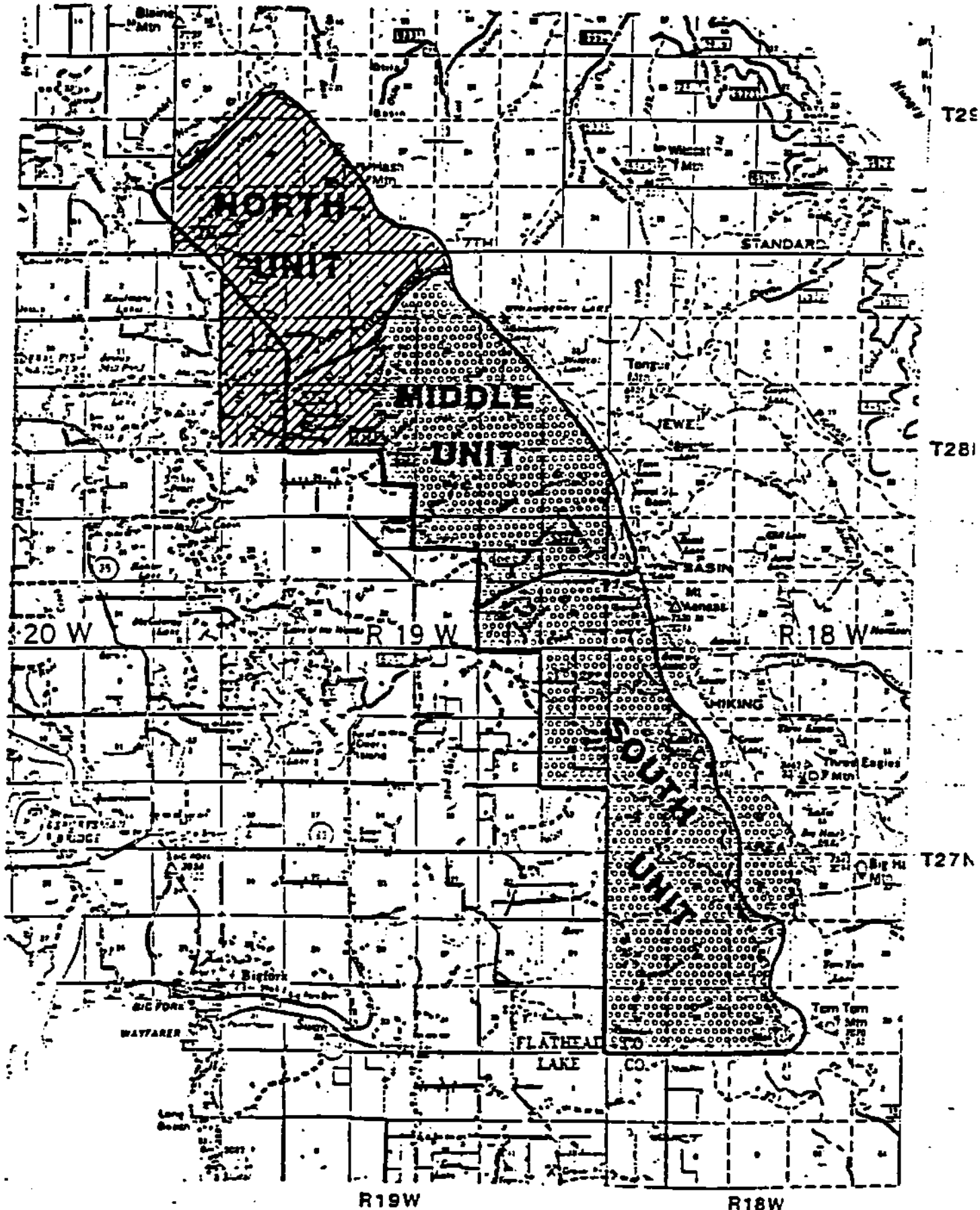
Figure 1: Grizzly Bear Management Situations

GRIZZLY BEAR HABITAT

SUB UNITS



Grizzly Bear Management
Situation I
Grizzly Bear Management
Situation II



KRAUSE CREEK - PETERS RIDGE AREA CLOSURE

Figure 2.

— Closed to motorized use from April 1 to July 1.

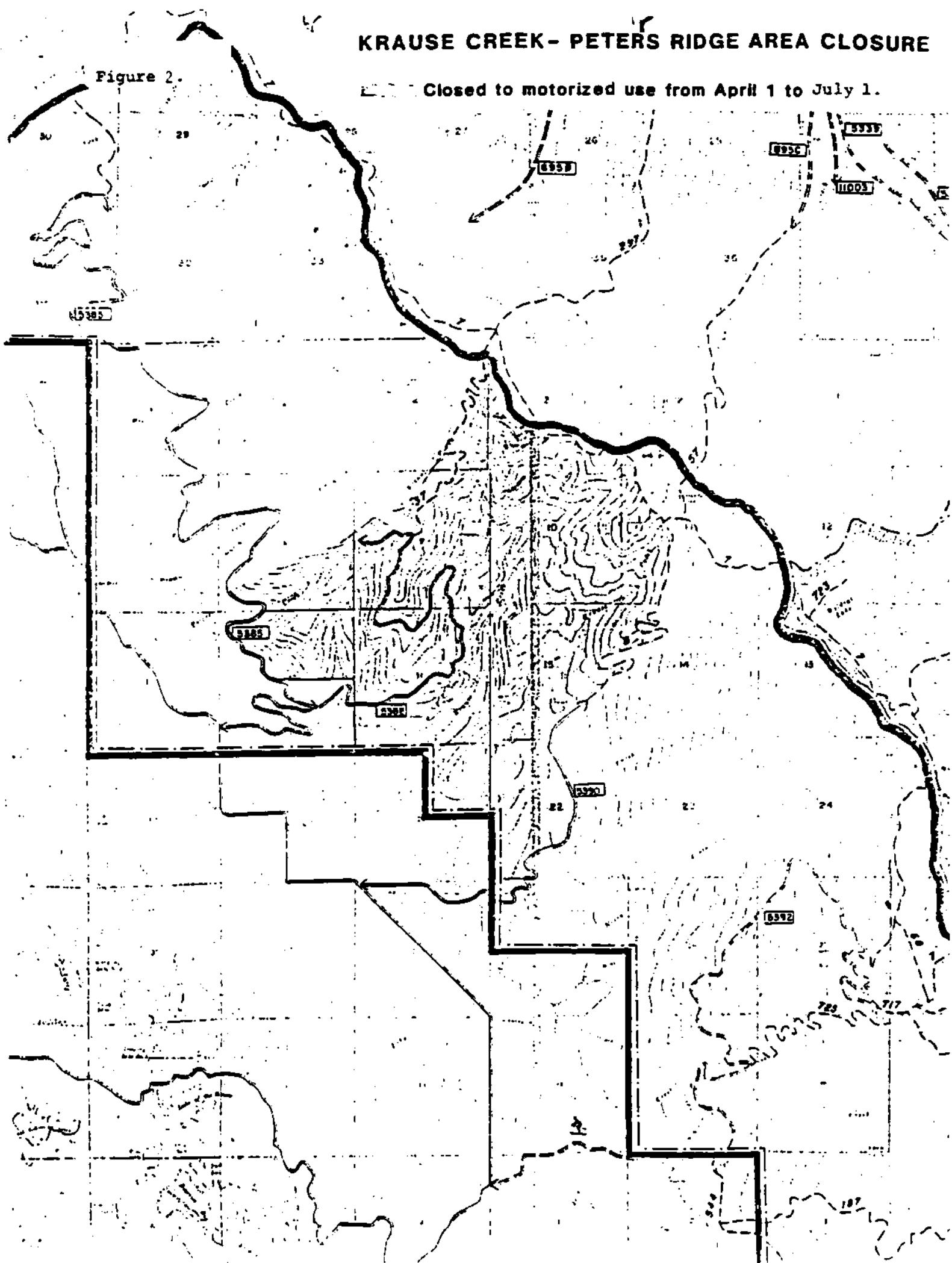


Table 1. Habitat Effectiveness for the existing situation and revised proposed alternative.

<u>Subunit</u>	<u>Alternative</u>	<u>Spring</u>	<u>Summer</u>	<u>Fall</u>
1 (North)	Base	100%	100%	100%
	Existing	73	54	54
	Proposed	82*	63	63
2 (Middle)	Base	100%	100%	100%
	Existing	52	40	44
	Proposed	94*	42	71*
3 (South)	Base	100%	100%	100%
	Existing	84	72	87
	Proposed	81	72	85

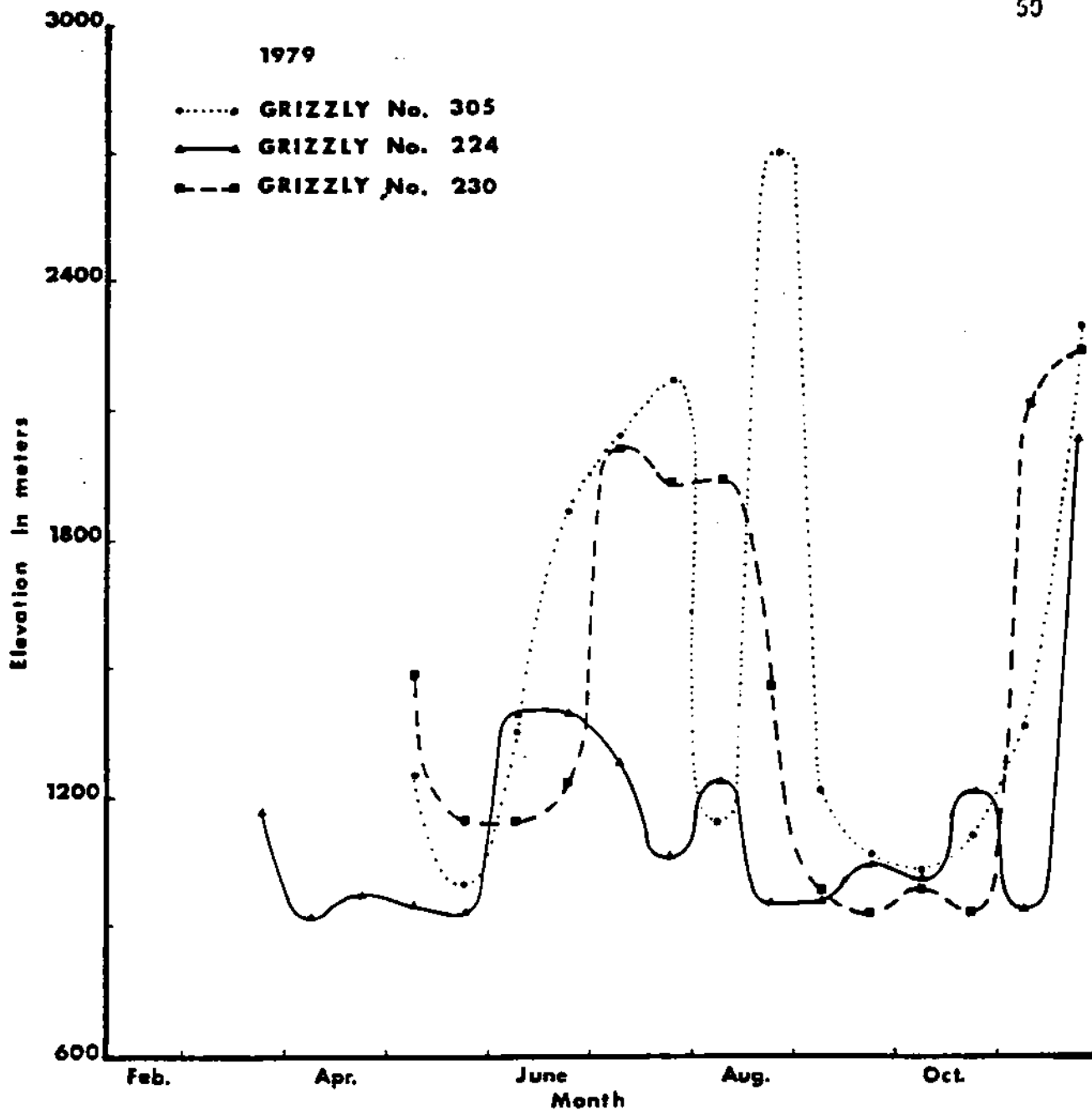
*Habitat effectiveness calculated using the regression analysis in Appendix A. All other ratings calculated by the Forest Service using the cumulative effects analysis presented in the Flathead Forest's biological evaluation.

Table 2. Bear habitat value by subunit and grizzly bear use season.

<u>Subunit</u>	<u>Spring</u>	<u>Summer</u>	<u>Fall</u>
North	0.1	.43	.48
Middle	.27	.61	.59
South	.25	.75	.74

Figure 3. Elevational movements of grizzly bears in the Mission Mountains, Montana.

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Source: Servheen, C. 1981. Grizzly bear ecology and management in the Mission Mountains, Montana. PhD Thesis. University of Montana, Missoula. 138pp.

Appendix A

Regression Analysis

- a. Regression analysis (Figure 4) showed a high positive relationship (correlation coefficient = .91) between miles of roads and trails (mi./mi² of habitat) and the "Effect Factor" (Impact Density) used in the Forest's biological evaluation (Table 2 and 3 of biological evaluation). The equation describing this relationship is:

$$y = mx + b$$
$$y = 0.59(x) + (-0.3)$$

- b. Using the equation in (a), we converted the miles of roads and trails in the Geographic Unit for alternatives that were evaluated using the cumulative effects model in the biological evaluation to their corresponding "Effect Factor":

Preferred Alt: 77.8 miles roads & trails (EA, Appendix J-1) or
(Decision Notice 1.95 mi/mi²
of June 10, 1987) $y = .59 (1.95) + (-0.3)$
 $y = .9$ Effect Factor

Current Situation: 93.2 miles roads & trails (EA, Appendix J-1) or
2.33 mi/mi²
 $y = .59 (2.33) + (-0.3)$
 $y = 1.1$ Effect Factor

- c. Regression analysis (Figure 5) showed a high negative relationship (Correlation coefficient = -0.99) between the Effect Factor calculated in (b) and summer habitat effectiveness calculated (biological evaluation, pgs. 17 & 18) for the preferred alternative (Decision Notice of June 11, 1987), existing situation, and base situation (absence of any human influence on habitat).

The equation describing this relationship is:

$$y = mx + b$$
$$y = -41.1 (x) + 99.4$$

- d. In order to determine an Effect Factor that will result in a 70% RE, we solved for x using the equation in (c):

$$y = -41.1 (x) + 99.4$$
$$70 = -41.1x + 99.4$$
$$-29.4 = -41.1x$$
$$x = 0.72 \text{ Effect Factor}$$

A 0.72 Effect Factor equates to a density of 1.73 miles of roads and trails/mi²:

$$y = .59(x) + (-0.3)$$
$$.72 = .59x + (-0.3)$$
$$1.02 = .59x$$
$$x = 1.73 \text{ mi. roads \& trails/mi}^2$$

- e. Under the preferred alternative, Subunit 2 contains 36.19 miles of roads and trails or a density of 2.89 mi./mi² $\left(\frac{36.19}{12.5} = 2.89\right)$.

Thus, to achieve a 70% HE, the number of miles of roads and trails in Subunit 2 must not exceed 21.6 miles:

$$\frac{1.73}{2.89} = \frac{x \text{ miles}}{36.19}$$

$$x = 21.6 \text{ miles}$$

Figure 4. Regression analysis showing relationship between miles of road and trails in the Noisy Face Geographic Unit and the "Effect Factor".

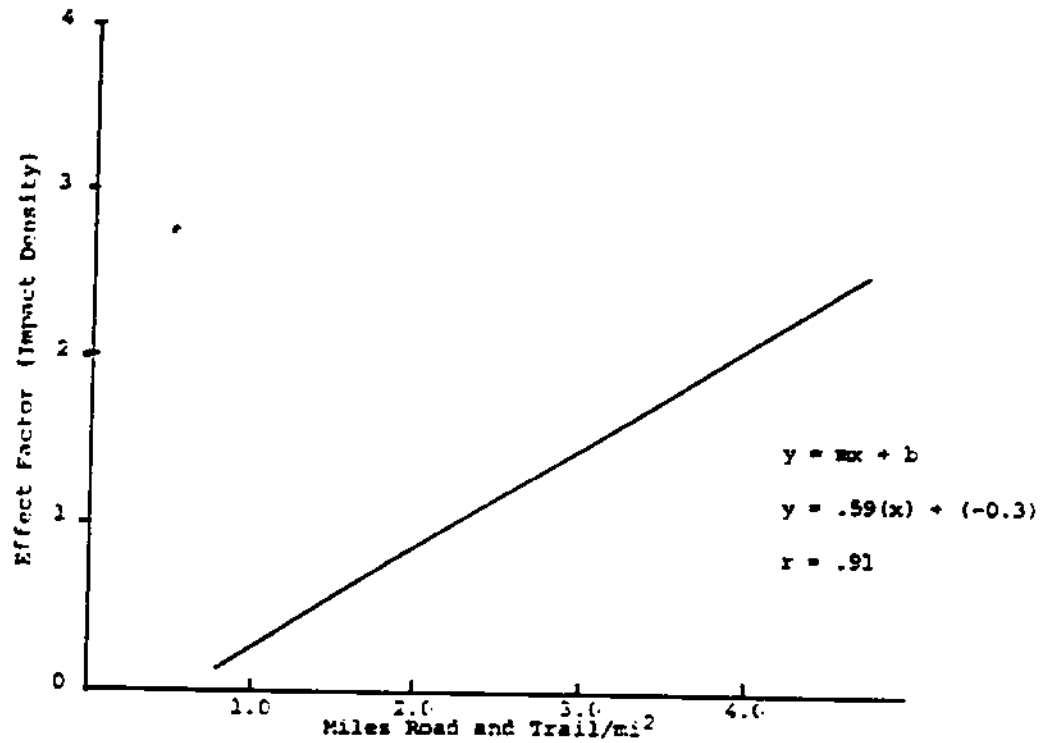
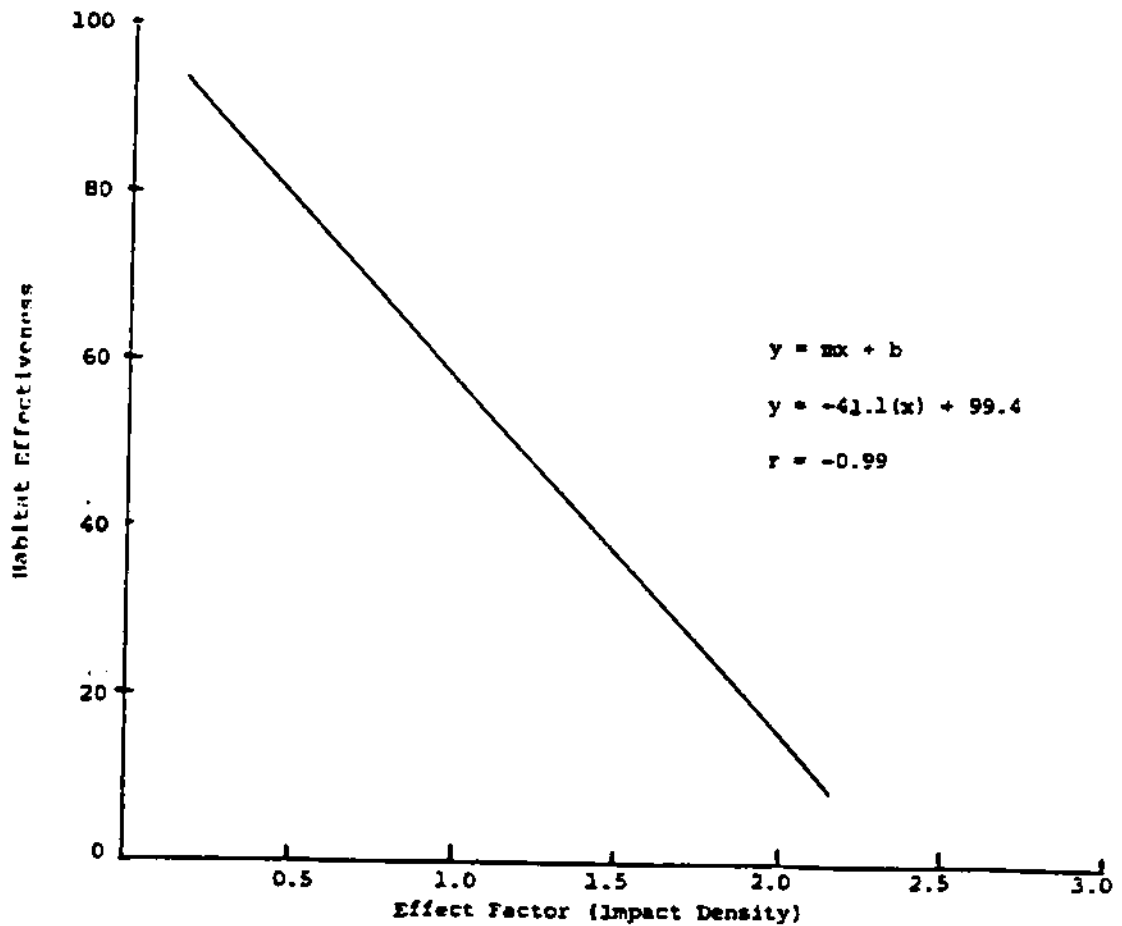


Figure 5. Regression analysis showing relationship between the "Effect Factor" and habitat effectiveness.



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