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by reference

FISH AND WILDLIFE HABITAT PROTECTION PLAN
FOR
MORROW COUNTY

A Report of the Oregon Department of Fish and Wildlife
to the
Morrow County
Division of Planning and Development
January 1979

By

Glen Ward
District Wildlife Biologist
Heppner

Bob Krein
Assistant Wildlife Biologist
Heppner

Jim Phelps
District Fish Biologist
Pendleton

Errol Claire
District Fish Biologist
John Day

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FISH AND WILDLIFE HABITAT PROTECTION PLAN
FOR
MORROW COUNTY

The information and recommendations presented in this report are provided to assist Morrow County planners in formulating a comprehensive land use plan. The report contains information regarding fish and wildlife habitat areas of concern, wildlife species presence and abundance and the related economic data which support land use recommendations. The recommendations provided offer protection for fish and wildlife habitat areas and meet statewide planning goals.

Production and survival of fish and wildlife are dependent on a quality environment. Indiscriminate land use activities in fish and wildlife habitat areas will reduce the productivity of the area for the species affected. Few if any areas are devoid of fish and wildlife and all areas are subject to land use impacts. Sensitive areas are designated throughout this report to focus attention on particular habitat types and species that are especially sensitive to land use activities. Therefore, it is not only important that sensitive habitats or species receive protection, but it is also important to consider the impacts of land and water uses on all habitat types and species.

Oregon Department of Fish and Wildlife policies, as listed in ORS 506.109 and ORS 496.012 are to manage fish and wildlife populations to provide optimal recreational, aesthetic and commercial benefits for present and future generations.

FISH HABITAT PROTECTION PLAN

All surface waters are areas of concern for fish habitat in Morrow County. Rivers, streams, reservoirs and headwater areas are valuable in providing water that is of a quality necessary to sustain fish life and to allow for natural production of the fish species. Rivers and streams are defined as natural flowing waters, including sloughs but excluding man-made canals and ditches. Reservoirs are defined as man-made bodies of water regardless of size. Headwater areas are defined as drainage areas that provide water for the larger downslope streams. Man-made disturbances through improper land use can alter the water quality of these surface waters to the point that fish habitats and fish production are eliminated.

The Department goals for streams, reservoirs and headwater areas include: protecting water quality and quantity, reducing erosion and turbidity problems along all water areas, retaining land adjacent to all water areas in as near natural condition as possible, and protecting riparian vegetation and stream channel integrity. These actions would thereby preserve fish habitat and maintain public fishing access to provide for a variety of recreational and aesthetic values.

Sensitive Areas

Streams, reservoirs and headwater areas indicated on the county map, Figure 1, in the Appendix, page 29, and additional streams

listed in Table 2 on page 30 of the Appendix are considered sensitive areas.

Inventory

Distribution of game fish species and the size of their populations are directly related to the amount of useable habitat present. In Morrow County there are approximately 343 miles of stream in the county, with 268 miles capable of providing fish production and habitat. Resident trout and various warm-water species inhabit the streams and reservoirs of the Umatilla Basin, while resident trout and steelhead inhabit the streams and reservoirs of the John Day Basin. The chart shown on page 30 of the Appendix lists the species of game fish and the streams and reservoirs in which they are found.

Stream flows in the county are typically high during the late winter and spring. By early summer the flows are reduced to a minimum. This characteristic flow pattern in the northeastern portion of the county is caused by past logging and improper land uses in the headwater areas combined with an ever increasing demand on county waters for irrigation purposes. Flow patterns in the southern portion of the county (John Day drainage) have been affected primarily by removal of timber in the headwater areas. Minimum flow standards have been recommended for streams in Morrow County by the Oregon Department of Fish and Wildlife. The minimum flows recommended are shown in Table 1.

Table 1
 Minimum Flow Levels for Streams
 in Morrow County
 as Recommended by the
 Oregon Department of Fish & Wildlife 1/

Stream	Loc	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Alder Cr	Mouth	8	8/12	12	12	12	8	4/1	1	1	1	8	8
Ditch Cr	Mouth	12	12/15	15	15	15	12	8/2	2	2	2	8	12
Little Wall Cr	Mouth	25	25/30	30	30	30	25	15/7	7	7	7	15	25
Mallory Cr	Mouth	12	12/15	15	15	15	12	8/2	2	2	2	8	12
Potamus Cr	Mouth	20	20/28	28	28	28	20	15/5	5	5	5	15	20
Stony Cr	Mouth	15	15/20	20	20	20	15	8/3	3	3	3	8	15
Willow Cr	Mouth	30	30	30	30	30	-	-	-	8	-	-	-
Rhea Cr	Mouth	15	15	15	15	15	-	-	-	4	-	-	-
Johnson Cr	Mouth	25	25	25	25	25	-	-	-	-	-	-	-

1/ Flows are expressed in cubic feet per second.

Sport angling in the county centers on rainbow trout, warm-water species and sturgeon. Most angling efforts are directed to the streams and reservoirs of the Umatilla Basin. Table 2 lists a breakdown of species, recreation provided and the economic benefits of the fishery resource.

Table 2

Species, Recreational Days Provided and Economic Value
of the Sport Fishery in Morrow County, 1975

Species	Angler Days Provided	Value/Day (1975 Dollars)	Economic Value
Rainbow Trout	7,410	\$11	\$81,510
Warm-water	935	9	8,415
Sturgeon	<u>270</u>	9	<u>2,430</u>
Totals	8,615		\$92,355

Table 3

Streambank Ownership
in Morrow County, 1975

Ownership	Miles Controlled
Public	
Federal	117.5
State	0
County	0
Private	<u>491.5</u>
	609 Miles*

*Ownership for both sides of stream,
except Columbia River.

Public access to waters within the county for all water-based recreation is presently adequate. However, due to the large amount of streambank area under private control, future access could be curtailed. Table 3 lists the present ownership of streambank area in Morrow County.

Recommendations

1. Morrow County land use classifications most compatible with a fish habitat protection plan are Agriculture, Forestry and Preservation.
2. Residential, commercial or industrial development on any body of water should be identified as a conditional use.
 - a. Encroachment on or destruction of riparian vegetation should be prevented.
 - b. Set-back or buffer zones should be incorporated into any shoreline development.
3. The County should identify the "streamway" and "floodplain".

A streamway is that area landward of a stream shoreline in which the stream will naturally wander or meander, seeking new channels by erosive action. A floodplain is the area subject to periodic flooding by a stream or drainage way. The boundary depends upon the frequency of the high flood levels.

 - a. Construction of "vulnerable" structures should be prohibited in the floodplain.
 - b. Compatible land use should maintain the riparian vegetation along streams in the floodplain. Streambank vegetation should be maintained along streams outside of the floodplain by utilizing appropriate setbacks.

4. Riparian vegetation, channel integrity and stable, non-eroding banks should be maintained along all water areas.
5. Land use practices that maintain or improve water quality should be practiced.
 - a. New road construction should be engineered and located to avoid unstable soil and all riparian zones.
 - b. Forest practices act rules and 208 water quality standards should be utilized by the county planners as guidelines.
6. Developments that require surface water appropriation or diversion should be located where stream flows are not reduced below the recommended minimums.
 - a. Efforts should be made through the State Water Resource Board to protect the remaining unappropriated water.
 - b. Efforts should be made through the State Water Resource Board to require more efficient use of water under existing water rights.
7. Projects which provide for additional instream flows to help meet the recommended minimums should be supported. The resulting flows should be protected from excessive withdrawals.
8. Public access for water-based recreation should be maintained or increased in all applicable areas.
 - a. Purchase of any streambank areas by local, county, state or federal agencies for public access should be encouraged by county planners.
 - b. Designation of open space zones along streams and reservoirs should be incorporated into the county plan.

9. Docks and other surface water developments should be minimal.
 - a. Cluster-type docks rather than individual docks are preferred.
 - b. Dredging and filling of shallow areas should be discouraged.
10. Future multi-purpose reservoir sites should be identified and appropriate land use restrictions should be applied to protect these sites.

WILDLIFE HABITAT PROTECTION PLAN

Completion of 1977 hunter survey by the Oregon Department of Fish and Wildlife has shown that Morrow County provided over 81,000 recreational days of hunting. This recreation has a gross economic impact* on the state of approximately \$4,988,000. Based on statewide statistics, about \$1,397,000 of this would be spent locally. In addition, trapping and the nonconsumptive uses of wildlife, photography, viewing and aesthetic pleasure, provide many more days of recreation and increases the economic value of wildlife in Morrow County.

All wildlife must be able to obtain adequate food, cover and water during all seasons of the year in order to survive. Optimum wildlife habitat would contain these three essentials distributed throughout the animals' range in a manner allowing complete utilization of the land. However, the possibility of optimum wildlife habitat has been gone since the first settlers started moving into Morrow County. Human settlement and developments have historically removed wildlife habitat areas from production and displaced wildlife. Future land use must permit the maintenance of remaining wildlife habitats for the benefit of future generations.

*The economic values used throughout this report have been based on data from various economic surveys summarized by Oregon Department of Fish and Wildlife staff economist, Chris Carter. This data is enclosed in the Appendix as Table 1.

Big Game

The goals of the Oregon Department of Fish and Wildlife are: provide an optimum big game population, protect big game habitat and provide for continued recreational opportunities for both consumptive and viewing purposes.

Habitat Requirements

The basic habitat requirements of big game are food, cover and water. During the winter months, December through March, supplies of food and cover are in lowest supply. Natural conditions of snow cover or poor forage production can reduce the amount of food available. Other than preventing overgrazing by domestic livestock in the wintering areas, there is often little that can be done to provide food for big game species. However, the amount of cover available during the winter can be controlled. Logging practices and woodlot management can be done in such a manner as to provide protection from the weather, a place to hide from natural predators and seclusion from the disturbances of man. Disturbance or harassment caused by human activities can prevent big game species from utilizing areas that provide food and cover necessary for survival.

Sensitive Habitat Areas

Big game sensitive habitat areas in Morrow County are those areas less than 3,000 feet elevation that provide the necessary food, cover and water during the winter months. The map shown in Figure 2, on page 31 of the Appendix outlines the sensitive habitat areas for big game in the county.

Inventory

Morrow County provides suitable habitat for mule deer, Rocky Mountain elk, pronghorn antelope, black bear and cougar. Table 4 lists the species and their estimated populations in the county.

During the 1977 deer and elk seasons, 11,230 hunters pursued these species in Morrow County. The amount of recreation provided and the economic benefits of this resource are listed in Table 5.

Land Use Conflicts

Human activities of urban sprawl, commercial development, new roads and in general increasing populations may conflict with big game in Morrow County by removing the habitat required for survival. Human inhabitation, harassment and agricultural developments in any of the areas denoted as sensitive will force the animals to move to other areas. The subsequent problems of crop damage are often difficult to resolve.

Recommendations

1. Morrow County land use classifications most compatible with big game are Agriculture, Forestry and Preservation.
2. Rural residential densities should be of low density, allowing for normal agricultural and forest uses.
 - a. Rural residential densities should not exceed one house per 40 acres on big game summer ranges.

Table 4

Big Game Species and Their Estimated Summer Populations
in Morrow County, 1977

Species	Estimated Population
Mule Deer	19,000
Elk	2,775
Pronghorn Antelope	200*
Black Bear	30
Cougar	5

*Antelope are confined to Ordinance Army Depot lands and are to be used for stocking other suitable areas in eastern Oregon.

Table 5

Species, Recreational Days and Gross Economic Impact
of Big Game Hunting in Morrow County, 1977

Species	Hunter Days Provided	Value of One Day	Gross Economic Impact
Deer	20,376	\$95	\$1,935,720
Elk	<u>27,315</u>	95	<u>2,594,825</u>
Totals	47,691		\$4,530,545

- b. Rural residential densities should not exceed one house per 160 acres on big game winter ranges.
3. High density developments on or adjacent to big game wintering areas should require design review or conditional permits to provide a mechanism to deal with specific problems.
 - a. Big game damage to gardens, shrubs, orchards and other domestic plants can be avoided or lessened by having the developer provide deer-proof fencing or other means to forestall conflict.
 - b. Strong leash laws can reduce harassment of big game species by free-roaming dogs.
4. New roads should be located to avoid sensitive habitat areas.
 - a. Seasonal roads should be closed to reduce harassment to big game species during the winter months, December through March.
 - b. Roads that are no longer necessary for other resource management should be closed permanently.
5. Off-road vehicle use should be controlled during the winter months and early spring to prevent harassment of big game species.

Upland Game Birds

The Department goal for upland game bird management is to maintain and provide suitable habitat to allow for the production of a harvestable surplus of birds.

Habitat Requirements

Habitat diversity is the key to providing optimum upland game bird populations. Riparian vegetation, agricultural croplands, sage brush-grassland areas and forest areas provide the needed diversity and the food, cover and water requirements for upland game birds in Morrow County.

Sensitive Habitat Areas

Throughout the County, riparian habitat provides most of the cover and water needed for survival of upland game birds. In addition to the county-wide designation of riparian zones as sensitive habitat areas, the three wildlife management areas, Irrigon Wildlife Management area, Coyote Springs Wildlife Management area and the Umatilla National Wildlife Refuge should also be considered sensitive habitat areas. The map shown in Figure 3, on page 32 of the Appendix denotes the sensitive habitat areas in Morrow County.

Inventory

The diverse habitat types available in Morrow County allow for a varied population of upland game birds to reside in the county. Species present in the county vary considerably from the most common, chukars, to the least common, Merriams turkey. A list of species found, their summer population and the acres of habitat available are listed in Table 6.

Hunting of upland game birds in Morrow County provides approximately 27,000 days of recreation. Table 7 lists the amount of recreation

Table 6

Species, Estimated Summer Population
and Available Acres of Habitat
for Upland Game Birds in Morrow County, 1977

Species	Estimated Summer Population	Acres of Habitat
Chukars	30,000	560,000
Ring-necked Pheasant	6,500	640,000
Mourning Dove	12,000	500,000
California Valley Quail	6,000	450,000
Mountain Quail	500	70,000
Hungarian Partridge	9,000	350,000
Blue Grouse	3,000	261,000
Ruffed Grouse	800	202,000
Merriams Turkey	150	205,000

Table 7

Species, Recreational Days, and Gross Economic Impact
of Upland Game Bird Resource in Morrow County, 1977

Species	Hunter Days Provided	Value/Day	Gross Economic Impact
Pheasant-Quail	13,570	\$13	\$176,410
Chukar-Hungarian	10,940	13	142,220
Grouse	2,093	13	27,209
Dove	401	13	5,213
Turkey	100	13	1,300
Total	27,104		\$352,352

provided by species and the economic impact of the upland game bird resource in Morrow County.

Land Use Conflicts

Any land use that changes the characteristics of riparian areas, inundates large expanses of sage brush-grassland areas or reduces the diversity in the forest areas will adversely affect the population and production of upland game bird species in Morrow County. Modern farming practices of utilizing the maximum amount of land, such as removing brushy areas, woodlots and riparian vegetation, can only reduce habitat that is needed by upland game birds. Overgrazing or improper logging techniques on large blocks of land in the foothill and forest areas will remove habitat needed for optimum populations of upland game birds in those areas.

Recommendations

1. Morrow County land use classifications most compatible with upland game bird habitat are Agriculture, Forestry and Preservation.
2. Maintain rural agricultural lands.
 - a. Removal of riparian vegetation and brushy areas should be discouraged.
 - b. Riparian vegetation should be replaced wherever possible.
 - c. Residential densities should be no greater than one house per 20 acres.
3. Strong leash laws can reduce harassment and loss of upland game birds by free roaming dogs and cats.

4. Timber management practices should allow for varied timber stands in the forest areas.
5. The three wildlife management areas, Irrigon Wildlife Management Area, Coyote Springs Wildlife Management Area, and the Umatilla National Wildlife Refuge should be zoned as agricultural lands,

Waterfowl

The Department goals for waterfowl management include retaining wetlands and lands adjacent to water areas, preventing further destruction of waterfowl habitat by protecting existing habitat and providing recreational opportunities for hunting, viewing and other purposes.

Habitat Requirements

Nesting, feeding and resting areas are definite habitat needs for waterfowl. Nesting is the most critical activity in late spring and early summer. Marshy areas, lakes and slow moving streams with brushy banks provide important habitat for waterfowl species. During the fall and winter, waterfowl that migrate into and through the county depend heavily on the larger water areas for resting and feeding. Waterfowl that winter in Morrow County are heavily dependent on the Columbia River, and the agricultural fields in the north end of the county. The three management areas listed previously, Irrigon WMA, Coyote Springs WMA and the Umatilla NWR were established to alleviate some of the crop damage and to provide areas that offer the needed winter habitats.

Inventory

A build up of the waterfowl population occurs annually during late fall and early winter as migrating birds move into the county. The number of waterfowl wintering in the county has increased with the increase of agricultural developments in the north end of the county. The wintering population of waterfowl is expected to increase in the future.

Peak winter population of ducks and geese in Morrow County during 1977 were 170,000 and 95,000 respectively. 1/

A breakdown of the hunting effort in Morrow County shows that 6,221 days of recreation were provided to people pursuing waterfowl species. Economic data shows that each recreational day provides \$17 to the state economy, a total gross economic impact of \$105,757.

Sensitive Habitat Areas

Areas that provide resting and feeding areas for wintering waterfowl in Morrow County should be considered important habitat areas. The three wildlife management areas, Irrigon WMA, Coyote WMA and the Umatilla NWR and other areas as denoted on the map, page 33 of the appendix should be considered sensitive waterfowl habitat areas in the county.

Land Use Conflicts:

Land use activities that destroy wetlands, marshy areas, riparian

1/ Personal communication with John Kurtz, manager of Umatilla NWR.

areas or disturb resting areas will adversely affect waterfowl habitat in Morrow County.

Recommendations

1. Morrow County land use classifications most compatible with waterfowl habitat are Agriculture and Preservation,
2. Development or land uses that require drainage, channelization, filling or removal of riparian vegetation along any water source should be avoided.
3. Maintain rural agricultural lands; any residential development should maintain a density of no greater than one house per 20 acres.
4. Residential, commercial or industrial developments on or adjacent to waterfowl habitat wetland areas should be identified as conditional use and should include setbacks or buffer zones in the development plans.
5. Irrigon WMA, Coyote Springs WMA and the Umatilla NWR should be zoned as agricultural lands.
6. Strong leash laws can reduce harassment and loss of nesting waterfowl.

Furbearers

Department goals for furbearers are to protect habitat, provide optimum numbers of furbearing animals for recreational opportunities and to keep land use conflicts to a minimum.

Habitat Requirements

Food, cover and water requirements for furbearers are varied and

are generally associated with the habitat requirements of big game, upland game birds and waterfowl. Aquatic furbearers, beaver, muskrat, mink and river otter are generally associated with brushy streambanks. The terrestrial forms such as skunk, bobcat, badger and coyote are found throughout the county in suitable habitat areas.

Important Habitat Areas

Portions of the habitat areas listed for big game, upland game birds and waterfowl should be considered as important habitat for furbearers.

Inventory

Estimated furbearer populations and the amount of habitat available is listed in Table 8.

Land Use Conflicts

Any land uses that destroy habitat for big game, upland game birds or waterfowl will also destroy habitat for furbearers.

Recommendations

1. Morrow County land use classifications most compatible with furbearer habitat are Agriculture, Forestry and Preservation.
2. The Department recommendations listed for big game, upland game birds and waterfowl will also benefit both aquatic and terrestrial furbearers.

Table 8

Estimated Population of Furbearers
and Acres of Useable Hababit
in Morrow County, 1977

<u>Species</u>	<u>Estimated Population</u>	<u>Acres of Habitat</u>
Beaver	350	2,450
Muskrat	800	10,000
River Otter	5	1,000
Mink	200	3,350
Coyote	1,500	1,321,500
Bobcat	150	1,192,300
Badger	1,000	350,000
Raccoon	750	15,000

Nongame Wildlife

The Department goal is to protect habitat that will provide optimum production of nongame wildlife populations to provide for recreational and aesthetic uses while minimizing land use conflicts.

The value of the nonconsumptive uses of nongame wildlife in Oregon was determined by a 1974 survey conducted by Oregon Department of Fish and Wildlife. The survey indicated that during one year 719 thousand people in Oregon watched or photographed birds and other wildlife, 688 thousand fed birds and 245 thousand constructed and/or put up bird houses or nest boxes.

Habitat Requirements

Due to the large diversity of nongame species, their habitat requirements vary considerably. Habitat requirements listed for big game, upland game birds and waterfowl are applicable to nongame wildlife.

Important Habitat Areas

Nongame wildlife is found throughout habitat areas denoted for big game, upland game birds and waterfowl. Portions of these areas should also be considered important for nongame species.

Prior to 1977, the Washington ground squirrel was not believed to inhabit any areas of Oregon. Since that time a small colony of Washington ground squirrels has been located on the Navy

Bombing Range. This area is shown on the map, page 34 of the Appendix and should be considered a sensitive habitat area. Although its official status has not been determined, it is a relatively rare and unique species.

Inventory

Morrow County contains a variety of hawks, owls, songbirds, shorebirds and small mammals. Nongame populations fluctuate substantially by seasons and migrations and no population estimates are available.

Land Use Conflicts

Land use activities in the urban areas that eliminate open space will also remove the dependent nongame species. Land use conflicts listed for big game, upland game birds and waterfowl also affect nongame species.

Recommendations

1. Morrow County land use classifications most compatible with nongame habitats are Agriculture, Forestry and Preservation.
2. Protect existing ponds, wetlands and riparian areas and encourage development of additional ponds and lakes.
3. Any residential development areas should allow for open space areas within the development.
 - a. Supplemental plantings of seed and fruit producing ornamental shrubs should be encouraged in any development area.

- b. Native plant and tree species should be left in any development area.
4. Leave non-hazard snag trees along streams and in forest areas.

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- Smouse, Evan P., Lowry, Calvin. Annual Survey of
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Wildlife Plan, 175 pages, unpublished.

APPENDIX

Table 1

Estimated Economic Values of a Recreation Day
(1977 Dollars)

Activity	Gross Economic Impact	Average Trip Expenditures	Allocated Equipment Investment	Net Economic Value
Big game hunting	\$95	\$35	\$60	\$16
Upland, small game hunting	13	6	7	NA
Waterfowl hunting	17	8	9	NA
Salmon, steelhead angling	31	14	16	51
Resident trout angling	NA	NA	NA	12
Warm-water angling	10	6	4	10

NA - Not Available

About one-third of Average Trip Expenditures and about one-fourth of the Allocated Equipment Investment is spent locally within the county where the recreation days are spent.

Reference: Chris Carter, Staff Economist
Oregon Department of Fish and Wildlife

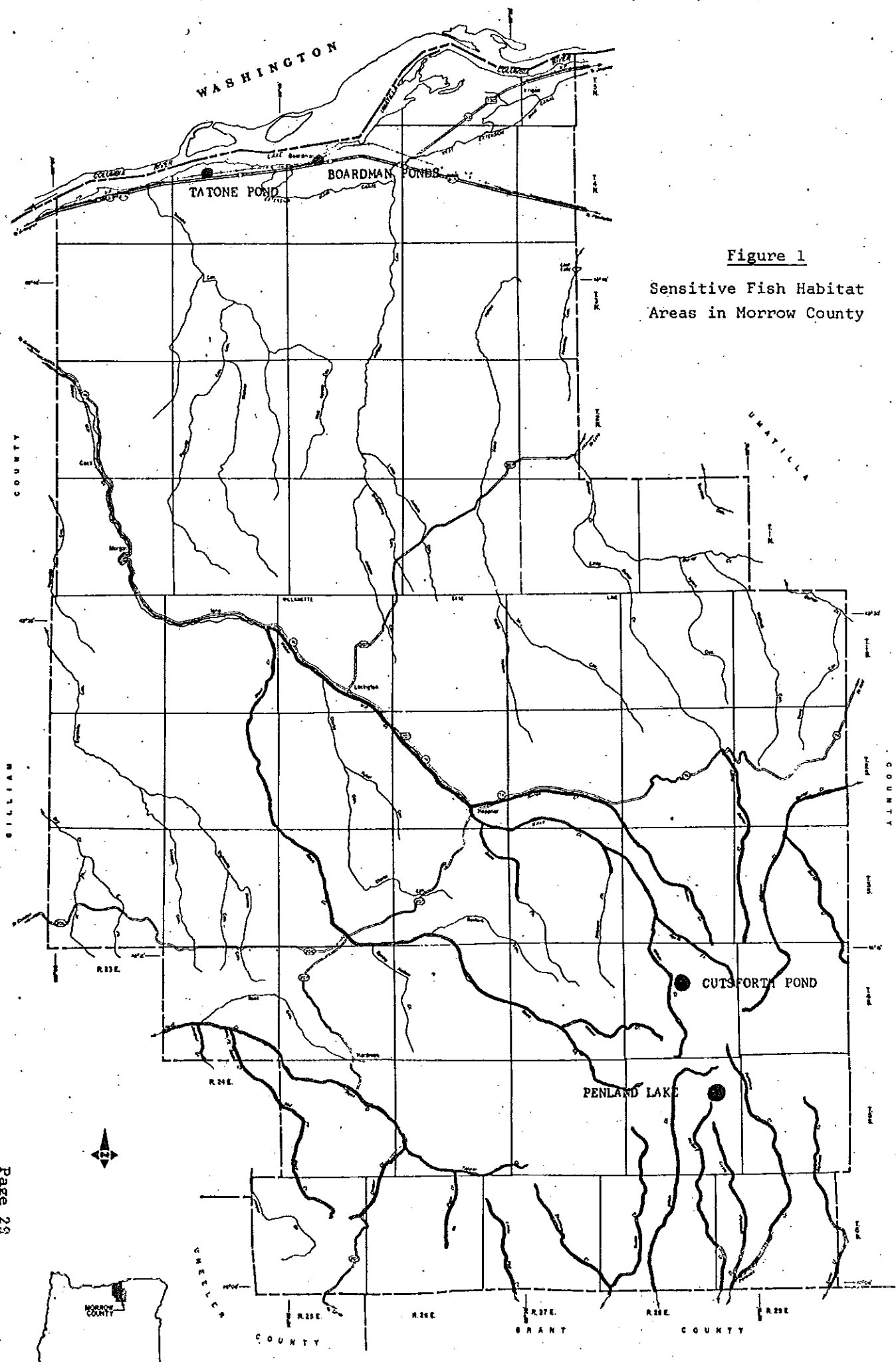


Figure 1
Sensitive Fish Habitat
Areas in Morrow County

APPENDIX

Table 2Fish Waters and Species of Game Fish
in Morrow County

Cutsforth Pond	Rainbow
Penland Lake	Rainbow
Tatone Pond	Rainbow
Boardman Ponds	Largemouth Bass White Crappie
Rhea Creek	Rainbow
Wilson Creek	Rainbow
Balm Creek	Rainbow
Thorn Creek	Rainbow
Chapin Creek	Rainbow
Board Creek	Rainbow
Johnson Creek	Rainbow
Little Butter Creek	Rainbow
Butter Creek	Rainbow
Columbia River	Summer & Fall Chinook Summer & Winter Steelhead Largemouth Bass Smallmouth Bass White Crappie Sturgeon Brown Bullhead Bluegill
Alder Creek	Summer Steelhead, Rainbow
Bacon Creek	Summer Steelhead, Rainbow
Bear Creek	Summer Steelhead, Rainbow
Ditch Creek	Summer Steelhead, Rainbow
Little Potamus Creek	Summer Steelhead, Rainbow
Little Wall Creek	Summer Steelhead, Rainbow
Graves Creek	Summer Steelhead, Rainbow
Mallory Creek	Summer Steelhead, Rainbow
Porter Creek	Summer Steelhead, Rainbow
Potamus Creek	Summer Steelhead, Rainbow
Rock Creek	Summer Steelhead, Rainbow
Rock Creek, Mid Fk	Rainbow
Skookum Creek	Summer Steelhead, Rainbow
Stony Creek	Summer Steelhead, Rainbow
Swale Creek	Summer Steelhead, Rainbow
Wilson Creek	Summer Steelhead, Rainbow
	Brook Trout

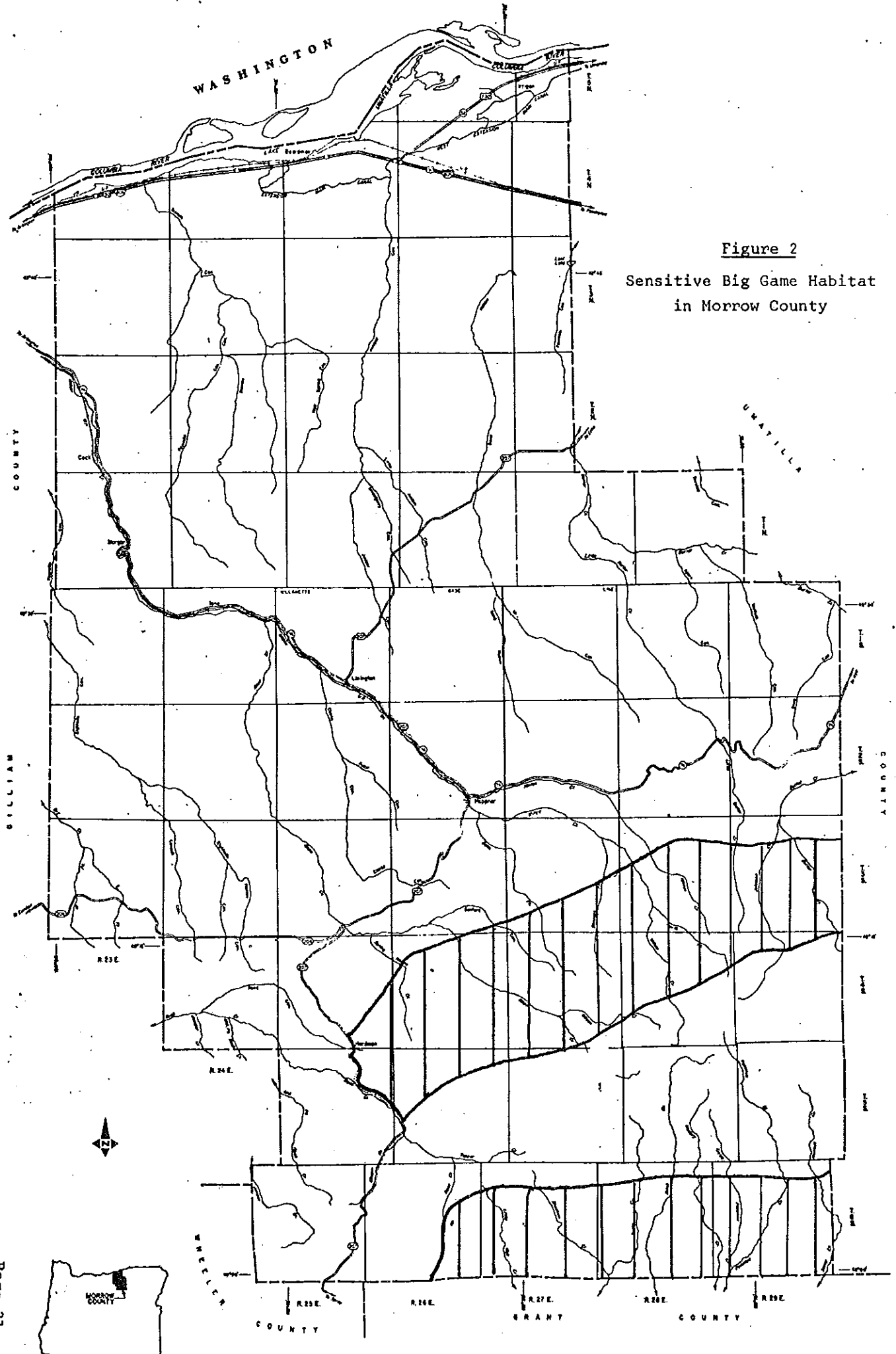


Figure 2
Sensitive Big Game Habitat
in Morrow County

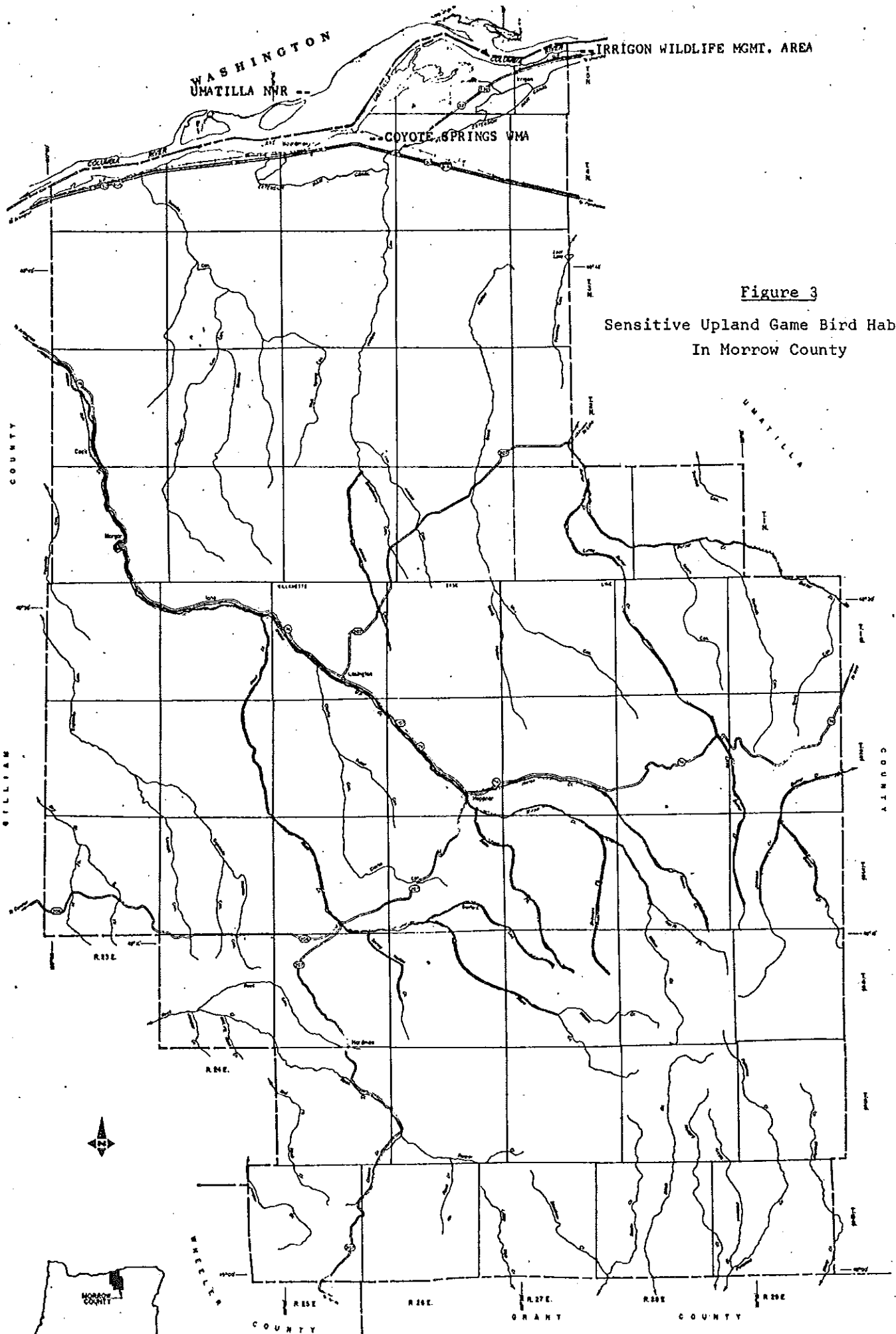
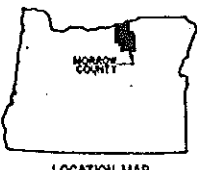


Figure 3
Sensitive Upland Game Bird Habitat
In Morrow County



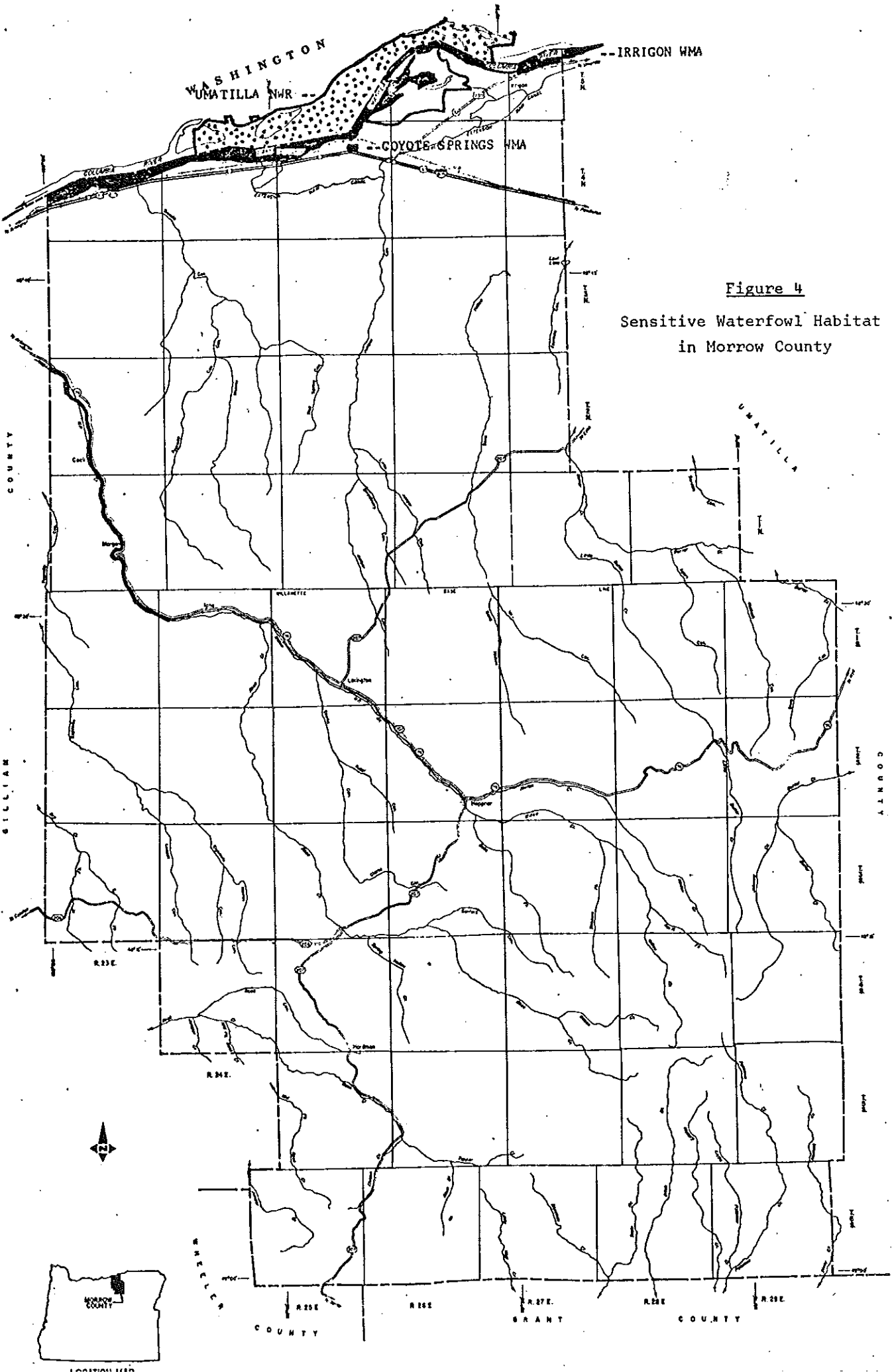


Figure 4

Sensitive Waterfowl Habitat
in Morrow County

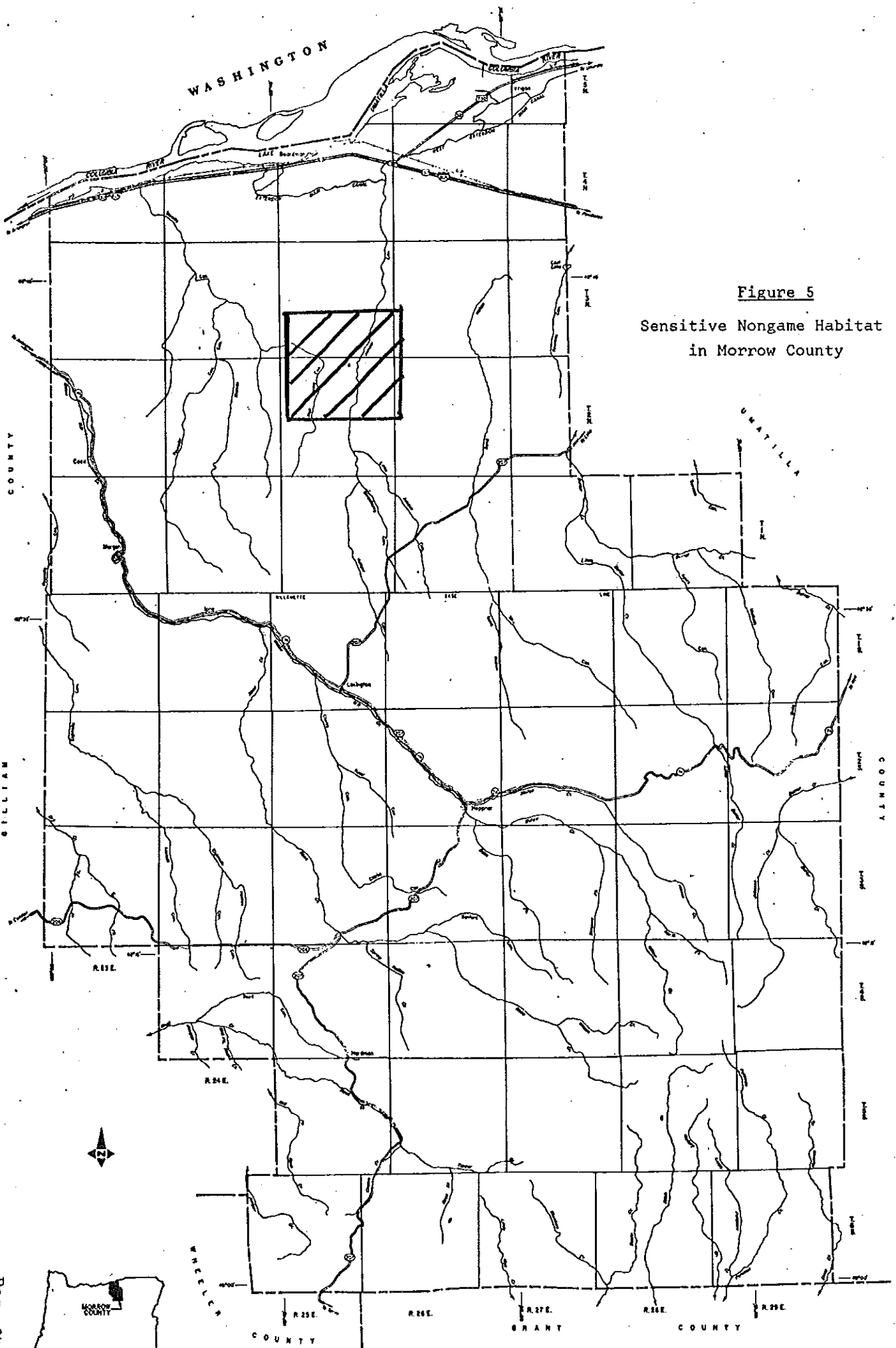


Figure 5
Sensitive Nongame Habitat
in Morrow County

