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Game Bird Farm and Shooting Preserve Programs

PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT
AUGUST 1999



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



Montana Fish, Wildlife & Parks

Headquarters
1420 East Sixth Avenue
P.O. Box 200701
Helena, MT 59620-0701
(406)444-4039
FAX: (406)444-4952
November 18, 1999

TO: Environmental Quality Council, Capitol Building, Helena, 59620-1704
Dept. of Environmental Quality, Metcalf Bldg., PO Box 200901, Helena, 59620-0901
Montana Fish, Wildlife, and Parks
Director's Office
Legal Unit – Legal Secretary
Regional Supervisors
Wildlife Division

Montana Department of Livestock
Montana State Library, 1515 East Sixth Avenue, Helena, 59620-1800
Licensed Shooting Preserve Operators
Licensed Game Bird Farm Operators
Dept. of Fish, Wildlife and Parks Wardens
Dept. of Fish, Wildlife, and Parks Wildlife Biologists

Ladies and Gentlemen:

The enclosed Draft Programmatic Environmental Impact Statement (PEIS) has been prepared to address the administration and regulation of programs in place through the Montana Department of Fish, Wildlife, and Parks concerning game bird farms, game bird shooting preserves, and general possession and release of game birds. As a result of the PEIS, alternatives to the current administrative and regulatory programs have been presented. One of these alternatives is the "MFWP Preferred Alternative". Written comments concerning the PEIS will be accepted through February 29, 1999 at 5:00 PM and should be directed to Tim Feldner, Commercial Wildlife Permitting Program Manager, at the above address.

Public hearings have been scheduled for the following times and locations to provide an opportunity for verbal input by interested parties concerning the enclosed document:

January 18, 2000, 7:00 PM

MFWP Region 4 Headquarters
4600 Giant Springs Road
Great Falls, MT 59405

February 1, 2000, 7:00 PM

MFWP Region 5 Headquarters
2300 Lake Elmo Drive
Billings, MT 59105

Sincerely,

Tim Feldner
Commercial Wildlife Permitting Program Manager

500 copies of this document were published at an estimated cost of \$4.80 per copy, for a total cost of \$2400 which includes \$2400 for printing and \$.00 for distribution.

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CHAPTER 1

INTRODUCTION

BACKGROUND FOR PROGRAMMATIC EIS

Montana Fish, Wildlife and Parks (MFWP) administers and regulates game bird farm and game bird shooting preserve programs, and general possession and release of game birds, in Montana under the provisions of Title 87, Chapters 1 through 5, Montana Code Annotated (87-1 through 5, MCA). Game bird farms are "enclosed areas upon which game birds may be kept for purposes of obtaining, rearing in captivity, keeping, and selling game birds or parts of game birds". Shooting preserves are land areas of less than 1,280 acres upon which game birds may be released for shooting from September 1 through March 31. Money used to administer these programs is raised through general license fees and license fees for game bird farms and shooting preserves.

Currently, there are 52 game bird farms and 71 shooting preserves licensed in Montana. In addition to reviewing game bird farm and shooting preserve applications under 87-1 through 5, MCA, MFWP is required to comply with the Montana Environmental Policy Act (MEPA) prior to granting a license to operate a game bird farm or game bird shooting preserve in Montana. MFWP must either prepare an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) to comply with MEPA. The purpose of preparing an EA or EIS prior to licensure is to describe the proposed action, and evaluate potential impacts, including cumulative and secondary impacts, on the physical environment. Historically, MFWP has prepared EAs for game bird farms and game bird shooting preserves in the form of an environmental checklist.

MEPA requires all state agencies to recognize and consider to the fullest extent possible the consequences that their actions may have on the quality of the human environment (75-1-201, MCA) and directs them to:

- use a systematic, interdisciplinary approach which will ensure the integrated use of the natural sciences and the environmental design arts in planning and decision making which may have an impact on the environment; and
- identify and develop methods and procedures which will ensure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations.

A "programmatic review" is a MEPA document that is defined as a "general analysis of related agency-initiated actions, programs or policies, or the continuance of a broad policy or program" that may "in part or in total...constitute a major state action significantly affecting the quality of the human environment" (4.2.328 ARM). Programmatic reviews must discuss impacts associated with the agency action or program, alternative ways of conducting the action, and cumulative environmental effects of the alternatives in relation to other programs of similar nature. MEPA requires the MFWP to:

- issue a Draft Programmatic Environmental Impact Statement (PEIS);
- encourage and accept public comments on the draft; and
- issue a Final PEIS. The Final PEIS may:

- modify alternatives, including the preferred alternative;
- develop and evaluate alternatives not previously considered;
- supplement, improve, or modify the analysis contained in the draft;
- make factual corrections; and
- explain why comments do not warrant further response.

This PEIS describes game bird farm and game bird shooting preserve programs in Montana as currently administered, the existing environment and resources these programs affect, and the direct, indirect, and cumulative impacts the programs have on the natural and human environment. This document will assist MFWP in planning and decision making by presenting an integrated and interdisciplinary analysis of administrative alternatives for game bird farm and shooting preserve programs, including the potential for establishing categorical exclusions from MEPA review. Analyses of impacts presented in this document are based on literature research, public comments, and interviews with MFWP personnel, wildlife agency personnel in other states, and game bird farm and shooting preserve owners/operators.

Several alternatives are evaluated in this PEIS. Alternative A, the "No Action" Alternative maintains the current regulations and management for game bird farms and shooting preserves. Alternative B modifies program management by categorically excluding proposed game bird farm and shooting preserves from MEPA review, conditional on compliance with appropriate mitigation measures. Alternative C is the same as Alternative B except that additional mitigation measures are included in Alternative C.

Alternative D would incorporate a variety of regulatory management changes with either Alternatives A, B, or C.

ROLE OF MFWP AND OTHER GOVERNMENT AGENCIES

MFWP licensing authority is specified in Title 87, Chapter 4, Parts 5 and 9, MCA. MFWP is required to complete an EA/EIS in accordance with MEPA before it can issue a license for new game bird farms and game bird shooting preserves. A game bird farm license is required to own, control, or propagate game birds for commercial purposes. Game bird farm licensees may only release birds into the wild with prior department approval. Shooting preserve licenses may not be issued for operations which will substantially reduce hunting areas available to the public as determined by the department.

The Montana Department of Livestock is responsible for regulating importation of game farm birds. Under current law, game birds raised on farms in Montana are not required to be tested for diseases. However, all birds brought into the state must be certified as pullorum-typhoid free. Out-of-state hatcheries typically comply with this requirement by participating in the National Poultry Improvement Plan (NPIP). The NPIP program in Montana is administered by the Department of Livestock.

The Montana Department of Environmental Quality (DEQ) is responsible for regulating activities that could affect the quality of state water. A permit from DEQ is required to construct or use any outlet for discharge of wastes or wastewater into state surface water or groundwater under the Montana Water Quality Act. Nonpoint discharges from new or increased sources are regulated by DEQ under the nondegradation policy described in Title 75, Chapter 5, Part 3, MCA.

The U.S. Army Corps of Engineers is responsible for permitting placement of any dredged or fill material into waters of the U.S. or wetlands under Section 404 of the Clean Water Act.

The Montana Department of Natural Resources and Conservation (DNRC) is responsible for

regulating state surface and groundwater rights. Owners of all supply wells within the state are required to file a notice of completion of any new well within 60 days of completion. Water supply wells must be drilled by a contractor licensed by the Board of Water Well Contractors or by a person who has obtained a permit from the board to drill a well on agricultural property for private use. Any groundwater appropriation exceeding 35 gallons per minute or 10-acre feet of water per year for beneficial use, or is located inside an established controlled groundwater area, must be permitted by DNRC prior to well construction.

The U.S. Department of Interior, Fish and Wildlife Service, administers the Federal Endangered Species Act which provides special protection to any species or its habitat if the species is listed as threatened or endangered.

Individual counties throughout the state administer the County Noxious Weed Control Act (CNWCA) (7-22-212 *et seq.*, MCA). The Act makes it unlawful for persons to allow noxious weeds to propagate or go to seed on their land and encourages landowners to file weed control plans. State law requires counties to develop weed control districts to plan and implement weed control efforts.

PUBLIC SCOPING

A Notice of Intent to prepare this PEIS was distributed to all game bird farm and shooting preserve licensees, the Montana Wildlife Federation, and others who have expressed an interest in the subject over the past three years. Distribution of these notices on February 19, 1998 initiated a public scoping period that solicited comments through March 20, 1998.

MFWP held a public open house in Helena, Montana, on March 3, 1998, to solicit concerns of the interested public. Approximately 22 people attended the open house and MFWP received 17 written comments from individuals or groups.

Issues Raised During Scoping Period

Issues raised during the public scoping period are summarized below:

Wildlife

- Potential transmission of disease from pen-reared birds to wild bird populations.
- Potential genetic hybridization of wild game bird populations, primarily pheasants and turkeys.
- Potential for nesting habits of pen-reared birds to affect wild bird populations. Ring-necked pheasants are relatively aggressive and will lay eggs in other bird nests.
- Potential for game bird farm and shooting preserve programs to increase predator populations.
- Consequences of releasing chukars and Hungarian partridge on shooting preserves.

Vegetation

- Potential impact to vegetation variety and quantity in areas near shooting preserves.
- Potential for noxious weeds to spread as a result of game bird farm or shooting preserve practices.

Noise

- Potential effects of noise on wild game, domestic animals, and humans.

Socioeconomic

- Potential for shooting preserves to affect public hunting opportunities and affect wild game bird populations. Certain shooting preserves plant lure crops and/or maintain vegetative cover. This practice may attract wild birds from nearby public and private land. The 7-month season for shooting preserves may also increase potential for wild birds to be harvested on shooting preserves.

CHAPTER 2

DESCRIPTION OF EXISTING PROGRAM

INTRODUCTION

This chapter summarizes existing laws and rules of MFWP pertaining to game bird farms and game bird shooting preserves. Also included in this chapter is a description of other game bird programs/policies being reviewed.

Alternatives considered in this PEIS were developed in consideration of issues identified by MFWP and public comments received during the public scoping process. The alternatives are intended to reduce or minimize potential impacts associated with the programs and identify methods to streamline or improve program management.

EXISTING REGULATIONS

As of July 1, 1999, there were 52 game bird farms and 71 game bird shooting preserves licensed in Montana. Many of the shooting preserves hold both a shooting preserve and game bird farm license. Existing game bird farms and shooting preserves were licensed and are administered under the laws and rules described below. Approximately 40 private permits to release game birds are issued each year and approximately 50 new permits to possess game birds are issued each year.

Game Bird Farms

Current laws and rules pertaining to operation of game bird farms in Montana were promulgated in 1983. "Game bird farm" means an enclosed area upon which game birds may be kept for purposes of obtaining, rearing in captivity, keeping, and selling game birds or parts of game birds (87-4-901, MCA). Game birds that may be raised on a game bird farm include all "upland game birds" except that the only pheasants included are ring-necked pheasants, and quail are not included.

"Upland game birds" mean sharp-tailed grouse, blue grouse, spruce (Franklin) grouse, prairie chicken, sage hen or sage grouse, ruffed grouse,

ring-necked pheasant, Hungarian partridge, ptarmigan, wild turkey, quail, and chukar partridge (87-2-101, MCA). Individuals may be authorized by MFWP to possess game birds for non-commercial personal use.

Based on comments received during the public scoping period, the definition of "upland game birds" has generated some confusion. Under 87-2-101, MCA (General Provisions), quail are considered an "upland game bird." However, under 87-04-901, MCA (Game Bird Farms), quail are not included as an "upland game bird" for purposes of game bird farms. Because quail are considered an upland game bird under the General Provisions of Fishing, Hunting, and Trapping statutes, all licensing, season restrictions, and other general hunting laws that apply to other game birds also apply to quail; however, there is no general hunting season for quail in Montana. Game bird farm laws and rules described hereafter do not apply to quail.

Individuals may raise quail with department authorization, and quail may only be released in Montana with MFWP authorization. Currently, quail may only be released on licensed shooting preserves and for authorized dog training.

Game bird farm licenses are subject to renewal on an annual basis. Game bird farm licenses expire on January 31 following the date of issuance. New game bird farm licenses are subject to a fee of \$25 with a renewal fee of \$15. An example game bird farm application form is included in Appendix A.

Game bird farm owners are required to fence or enclose the bird farm in a manner sufficient to prevent entry of wild game birds and to prevent escape of game farm birds into the wild. Game birds raised on a licensed game bird farm are the private property of the licensee and the licensee can sell and transfer the birds as private property as long as they are transported in compliance with applicable state laws and rules. Game bird farm owners are required to keep records of the number

and species of birds purchased, transferred, and sold, and the names of each person the birds were purchased from or sold to. Game bird farm licensees are required to submit a report to MFWP on or before January 31 of each year describing numbers and species of birds on the bird farm on January 1 and number and species of birds purchased, transferred, or sold during the previous year.

Game bird chicks are also sold through farm supply/feed stores during spring months. Chicks sold at these facilities typically include chickens, ducks, and pheasants. Farm supply/feed stores generally sell game bird chicks on a walk-in basis, where the store maintains a supply of chicks housed in open-topped cardboard boxes, or through special order. In the latter case, the store will take a personal order for a certain number of chicks and obtain the chicks from an out-of-state supplier. The store notifies the purchaser the day before the order arrives, and the purchaser is expected to pick up the birds within an hour of their arrival. In these cases, the chicks are seldom removed from their shipping boxes prior to transfer to the purchaser. Farm supply/feed stores that sell game bird chicks through either of the aforementioned methods are required to have a game bird farm license. Licensing inspections at these types of facilities are difficult because the stores usually do not have the required cages at the time the store applies for the license. Game birds can also be purchased directly from an out-of-state vendor. In this case, the birds are shipped by the U.S. Postal Service, and the purchaser picks up the birds at the post office. Game bird farm licenses are not required for this type of transaction.

Currently, game bird farm operators are not required to test birds raised on Montana bird farms for disease. However, birds imported into the state must be certified as pullorum-typhoid free under Montana Department of Livestock rules.

Shooting Preserves

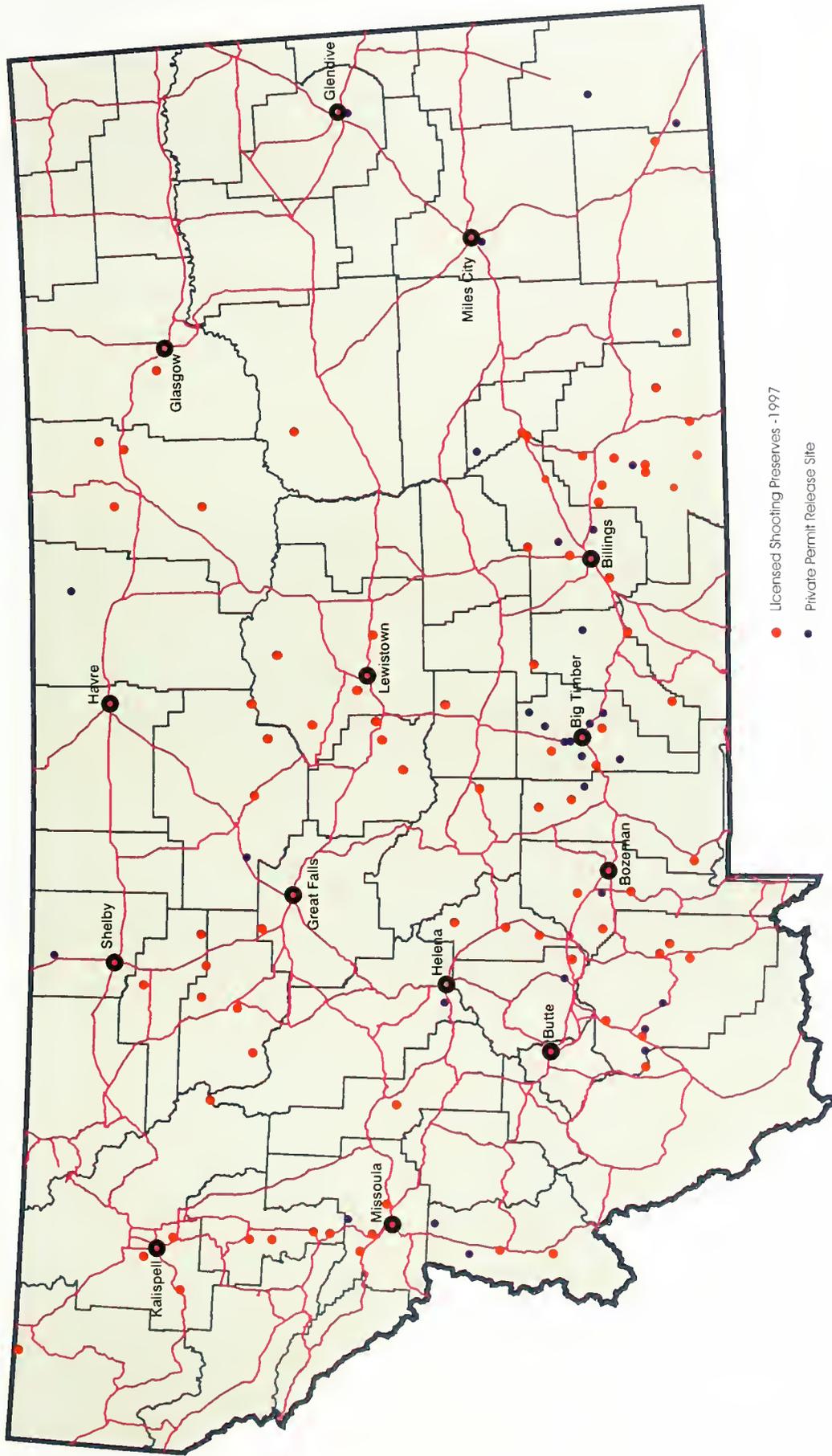
General locations of currently licensed shooting preserves are shown on Figure 2-1. Operating

licenses for shooting preserves can be issued to individuals, partnerships, associations, or corporations on land under the applicant's legal control. Artificially propagated birds of the following species can be released on licensed shooting preserves in Montana:

- ring-necked pheasant
- chukar partridge
- Hungarian partridge
- turkey
- quail

Additional species may be added to the above list only through amendment of ARM 12.6.1202. According to ARM 12.6.1202, MFWP may add other species that can be released on shooting preserves by rule change as long as the additional species are artificially propagated and indigenous to Montana or have established a permanent population in Montana and are found in the wild. Shooting preserves are limited to no more than 1,280 contiguous acres and cannot be located within 10 miles of an existing preserve. Shooting preserves cannot be located in an area that would substantially reduce hunting areas available to the public, based on a determination by MFWP. Exterior boundaries of shooting preserves must be clearly marked and posted with signs at intervals of 250 feet or less. Shooting preserve license fees are \$50 per year for the first 160 acres of the shooting preserve plus \$20 per year for each additional 160 acres or portion thereof. An example application form for shooting preserves is contained in Appendix A.

Artificially propagated game birds can be hunted on shooting preserves from September 1 through March 31 of each year. Shooting preserve hunters are required to have a valid resident (\$6) or non-resident (\$55) upland game bird license and a Montana conservation license. Non-residents may also purchase a 3-day, non-resident shooting preserve bird hunting stamp for a fee of \$20. It is unlikely that non-residents would purchase more than two of these stamps since a non-resident upland game bird license would cost less than three 3-day shooting preserve stamps.



● Licensed Shooting Preserves - 1997
 ● Private Permit Release Site

Programmatic EIS
 Game Bird Shooting Preserve and
 Private Release Sites (1997)
 FIGURE 2-1

Birds shot and retrieved on shooting preserves must be tagged with self-sealing tags. The tags must remain attached to the birds until the birds are prepared for consumption, whether they are consumed on the shooting preserve property or consumed elsewhere. MFWP supplies shooting preserve operators with tags at a cost of \$0.10 per tag.

Shooting preserve owners/operators are required to disclose whether the preserve is open to the public on a commercial basis or if the preserve is restricted to a membership or other limited group. MFWP is required to keep records of names, addresses, and locations of property of everyone who holds shooting preserve licenses or permits and make this list available to the public on request.

A minimum number of stock of each species authorized must be released on the shooting preserve in the licensed area throughout the course of the shooting preserve season. The number of stock to be released is determined by MFWP and the applicant during the environmental assessment process. Not more than 80 percent of the total number of each species of birds released on the shooting preserve each year may be harvested.

Shooting preserve operators must maintain the following records:

- Name, home address, and hunting license number of all hunters;
- Date on which they hunted;
- Number and species of birds taken;
- Tag number affixed to each carcass;
- Total number, by species of birds raised and/or purchased; and,
- Date and number of all species released.

Shooting preserves and records are subject to unscheduled inspections by MFWP to ensure compliance with all statutes, rules and regulations. Inspections are to be made at reasonable times.

Wild game birds can be harvested on shooting preserves as long as all applicable license, game, and hunting laws pertaining to open seasons, bag

and possession limits, and rules as established by MFWP and the U.S. Fish and Wildlife Service are obeyed.

Other MFWP Game Bird Programs

MFWP administers several other programs that may involve release of pen-reared game birds, including the upland game bird enhancement program, personal permit to release ring-necked pheasants, and dog training or field trials. These programs are not the direct subject of this PEIS but there is an important relationship between game bird farm and shooting preserve regulations and MFWP's policies on release of pen-reared game birds. Because these programs involve releasing pen-reared game birds in the wild, brief descriptions of each are presented in this chapter to provide the reader with a general understanding of administrative policies associated with these other programs. The MFWP Enforcement Division administers the permits to possess and permits to release game birds, and the Wildlife Division administers the upland game bird enhancement program.

Permit to Release Ring-Necked Pheasants

Holders of personal permits to release game birds may release pen-reared ring-necked pheasants on private land with permission from the landowner. Under this program, birds must be released between May 1 and August 31 of each year as specified by the applicant, and the release site is subject to approval by the department. Permits to release pheasants are free and can be obtained at all regional MFWP offices. A personal permit to release application form is included in Appendix A. Permit release sites for 1997 are shown on Figure 2-1.

Permits for Field Trials or Dog Training

Field trials are events designed to determine a dog's ability to point, flush, or retrieve game birds (87-4-915, MCA). A permit issued by MFWP is required to conduct a field trial. Field trial applications must be submitted to MFWP at least 20 days prior to the field trial and must include: 1) applicant's name and address; 2) name and address of any national affiliate; 3) description of where the field trial will be conducted; 4) date or dates of the field trial; 5) whether live birds will be used in the field trial; and 6) any other information

required by MFWP to determine the advisability of granting permission for the field trial.

Field trial permittees are required to carefully flush all wild game birds from the fields to be used for the trial each day before the field trial begins. Dogs are not permitted to run in fields where wild birds have not yet been flushed. All live birds used in field trials must be tagged before planted or released and are only to be planted or released in the presence of a MFWP representative. Untagged birds shot during field trials must be replaced with live birds.

Dogs may be trained in open fields at any time without permission from MFWP if no live game birds are killed or captured during the training session and the training is conducted more than one mile from any bird nesting site, management area, or game preserve. Dogs may be trained with a method that will kill birds acquired from a game bird farm upon approval from MFWP. Permit applications are available from MFWP Helena and regional offices. A MFWP field trial application form is included in Appendix A.

Upland Game Bird Enhancement Program

Under 87-1-246, MCA, a portion of license fees collected from sale of resident and non-resident upland game bird, resident sportsmen's, and non-resident big game combination licenses must be used by MFWP to preserve and enhance upland game bird populations in Montana. No more than 10 percent of the money generated from this program can be used to: 1) prepare and distribute information to landowners and organizations concerning the upland game bird enhancement program; 2) review potential pheasant release sites; 3) assist applicants in preparing management plans for project areas; and 4) evaluate the upland game bird enhancement program. Up to \$30,000 of the remaining 90% of funds collected from license fees must be used to share in the cost of releasing pheasants in suitable habitat (at \$3 per bird) with any left over funds used in the habitat program for development, enhancement, and conservation of upland game bird habitat (87-1-247, MCA).

Projects eligible for funding under the upland game bird enhancement program must have suitable pheasant habitat as determined by MFWP to support a permanent pheasant population. Efforts toward pheasant habitat enhancement must include assistance to applicants in establishment of suitable nesting

cover, winter cover, and feeding areas through cost sharing programs, leases, and conservation easements. Projects involving hunting preserves or any commercial enterprises where hunting rights are leased or paid for are not eligible for funding through the upland game bird enhancement program. MFWP must give preference to youth organizations, 4-H clubs, sports groups, or other organizations considered to be large enough to guarantee completion of a project. Individual landowners also may apply, as long as the project area is open to public hunting (87-1-248, MCA).

1. The department would authorize the release of Hungarian partridge and chukar partridge on private land as is currently allowed for ring-necked pheasants. Birds could be released on private property between May 1 and August 31 with landowner approval. Birds would have to be disease tested or from an NPIP certified game bird farm.
2. Permit requirements for dog training that involve the shooting of pen-reared pheasants, chukar or partridge will be required and clarified in department rules. No permit would be required for use of bobwhite quail or pigeons in dog training provided that the training does not occur within one mile of any bird nesting or management area or game preserve. It would be the responsibility of the dog trainer to select an acceptable location for training purposes.

Avicultural Permits

Under 87-2-807, persons can obtain an avicultural permit that allows the person to take, capture, and possess migratory game birds for the purpose of propagation. Hatched migratory game birds or their eggs taken under an avicultural permit remain the property of the state and may be disposed only with the permission of the state. Progeny of hatched migratory game birds taken under an avicultural permit become the private property of the permit holder and the owner may sell or transfer the birds as private property, subject to applicable state or federal laws.

The U.S. Fish and Wildlife Service also regulates migratory game birds and issues permits. Therefore, it is not necessary for the state of Montana to issue avicultural permits. Although

beyond the scope of this document, the MFWP is considering eliminating its avicultural permit requirements. Elimination of the state's avicultural permit would require legislative action, which could not be requested until 2001.

Program Alternatives

Based on this programmatic review of game bird farms and shooting preserves, four alternatives for future program management were identified for consideration. These alternatives are discussed in detail in Chapter 4, Program Alternatives.

Alternative A, the No Action Alternative

Game bird farm and shooting preserve programs would continue to be administered as they currently are. All new game bird farms and shooting preserves would be subject to review for compliance under the Montana Environmental Policy Act (MEPA). Typically, this review has included completion of a checklist Environmental Assessment.

Alternative B

This alternative recommends a categorical exclusion from MEPA review for game bird farms and shooting preserves which are identified as having no impacts on the human environment based on a site review. Shooting preserves that may have impacts would continue to require an environmental assessment for decision purposes. Based on the level of public interest, this could include a public involvement process.

Alternative C

Alternative C recommends a categorical exclusion from MEPA review for all new shooting preserves contingent on a specified set of conditions. These conditions would include compliance with all applicable rules and regulations and a number of mitigation measures designed to minimize or prevent impacts to identified wildlife resources (see Chapters 3 and 4) and neighboring landowners. Mitigation measures would help to ensure compliance with Montana game bird statutes.

Alternative D

This alternative requires mitigation measures developed to address program management issues other than those targeted by mitigation measures included in other Alternatives (see Chapter 4 for more detail). Some issues associated with private permits to release game birds and program funding are addressed in this alternative.

Certain mitigation measures described under Alternatives C and D would require legislative action, while others would require administrative rule changes. Necessary actions are identified for each sub-alternative.

CHAPTER 3

AFFECTED ENVIRONMENT

INTRODUCTION

This chapter describes existing environmental resources in Montana relevant to issues presented in Chapter 1. Potential direct, indirect, and cumulative impacts of the proposed action and alternatives are presented in Chapter 4.

WATER RESOURCES

Surface Water

Three river systems drain the majority of Montana – the Clark Fork, the Yellowstone, and the Missouri. Most streams west of the Continental Divide feed the Clark Fork River where it enters Idaho near Troy, Montana. The Clark Fork River flows to the Columbia River of Washington and Oregon, eventually discharging to the Pacific Ocean near Portland. The Yellowstone and Missouri rivers drain areas east of the Continental Divide and flow north and east before joining in western North Dakota. The Missouri River enters the Mississippi River at St. Louis before emptying into the Gulf of Mexico.

Certain drainages in portions of northwestern Montana drain north to the Hudson Bay (St. Mary River Basin) or west into Idaho (Kootenai River Basin). Other smaller drainages in southeastern Montana flow directly east and enter the Little Missouri River in southwestern North Dakota.

The Clark Fork River leaves Montana as the state's largest river. Headwaters of the Clark Fork are in southwestern Montana near Butte and Anaconda and major tributaries include the Blackfoot, Bitterroot, and Flathead rivers.

Average discharge in the Clark Fork near the Idaho border is 21,900 cubic feet per second (cfs). Extreme flows in the Clark Fork near Idaho include a high of 195,000 cfs in 1894 and a low of 270 cfs in 1952 (USGS 1995). Numerous dams have been built on the Clark Fork River and its tributaries to generate hydroelectric power and control flooding.

The Yellowstone River originates in Yellowstone National Park, Wyoming, flows northeasterly across Montana, and enters the Missouri River near Williston, North Dakota. Major tributaries include the Stillwater, Clark's Fork of the Yellowstone, Bighorn, Tongue, and Powder rivers. Average discharge in the Yellowstone near Sidney, Montana is 12,720 cfs. Extreme flows near Sidney include a high of 159,000 cfs in 1921 and a low of 470 in 1961 (USGS 1995). Dams have not been constructed on the Yellowstone River or its tributaries. Water is extracted from the Yellowstone throughout its course for irrigation, domestic, and municipal purposes.

The Missouri River, formed by the convergence of the Jefferson, Madison, and Gallatin rivers in southwestern Montana, flows north and east to its confluence with the Yellowstone River. Major tributaries include the Marias, Musselshell, and Milk rivers. Average discharge in the Missouri River near the North Dakota border is 10,180 cfs. Extreme flows include a high of 78,200 cfs in 1943 and a low of 575 cfs in 1941 (USGS 1995). Several dams have been constructed on the Missouri River and its tributaries to generate electric power, provide water for irrigation, and control flooding. The largest area of impounded water is Fort Peck Reservoir in northeast Montana. Water is extracted from the Missouri throughout its course for irrigation, domestic, and municipal purposes.

Surface water quality in Montana varies widely by location. Mountainous areas in western Montana receive large amounts of precipitation relative to eastern Montana. These higher precipitation rates result in a higher rate of fresh water recharge to surface water systems in western Montana, which generally results in higher quality surface water in western Montana. Further, geologic material in western Montana is generally less mineralized than geologic material in eastern Montana. This feature also contributes to generally higher quality surface water in western Montana relative to eastern Montana.

Stream classifications have been developed by the Montana Department of Environmental Quality (DEQ) for every major river and tributary in the state. DEQ has also adopted numeric standards to limit the amount of various substances that can be released to surface water. The various water quality standards for each stream class are established by ARM 17.30.603.

Game bird farms and game bird shooting preserves are located in virtually all regions of Montana. In western Montana, game bird farms and shooting preserves are typically located in valley bottoms near riparian areas; whereas in eastern Montana, bird farms and shooting preserves are located in both valley bottoms and upland areas.

Groundwater

Occurrence, quality, and movement of groundwater in Montana is dependent on site-specific factors, such as geology, topography, and climate. Water-bearing formations are divided into two general categories: unconsolidated and consolidated.

Unconsolidated water-bearing formations are generally formed by stream action (alluvial deposits), mass-wasting processes (colluvial deposits), or deposits resulting from glacial activities. These deposits of clay, silt, sand, gravel, and boulders are most common in intermontane valleys where deposits may be thousands of feet thick. Unconsolidated water-bearing formations outside intermontane valleys are usually less than 100 feet thick. Coarse-grained, well-sorted deposits, typical of alluvial material transmit water at higher rates than fine-grained, poorly sorted deposits typical of colluvium or glacial deposits.

Rocks ranging in age from Precambrian to Tertiary (sedimentary, igneous, and metamorphic) form consolidated water-bearing units in Montana.

In consolidated formations, water is stored and transmitted in voids within the original rock fabric (primary) and/or within fractures, fissures, joints, and cavities that formed during alteration of the original rock fabric (secondary). More water is usually stored and transmitted in the secondary form of voids.

Water occurrence and movement in consolidated water-bearing units are often difficult to determine

or predict, owing to the random nature of fracturing, jointing, and so forth. Most bedrock systems transmit lower quantities of groundwater than unconsolidated systems; however, the rate of groundwater movement through bedrock can be fast relative to groundwater movement in unconsolidated systems.

Unconsolidated and consolidated groundwater systems are primarily recharged by influent streams, precipitation, and snowmelt. Discharge is primarily to wells, effluent streams, evapotranspiration, and springs.

The quality of groundwater in Montana is dependent on the mineralogy of the host formation, age of water (relative to when it entered the subsurface), and proximity to contaminant sources. Groundwater in western Montana is generally of good quality because the mineralogy of both unconsolidated and consolidated formations in western Montana is relatively innocuous. Certain water-bearing systems in eastern Montana contain relatively poor quality water, owing to natural mineralization of the water-bearing formations. In many cases, groundwater in eastern Montana is unfit for human consumption, livestock watering, or irrigation due to high salt content.

Groundwater near its source of recharge is typically higher quality than groundwater distant from its source of recharge because groundwater leaches minerals from host formations as it migrates in the subsurface. In certain cases, groundwater quality is poor due to extraneous contaminant sources. Principal extraneous sources of groundwater contamination include septic tanks and drain fields, underground storage tanks, injection wells, miscellaneous spills and uncontrolled releases, abandoned hazardous waste sites, and agricultural activities. The extent and severity of groundwater contamination is dependent on the hydrogeologic setting and the type and volume of contaminants in the subsurface.

Soil

Soil development results from the interaction of climate, soil microorganisms, geologic parent material, and topographic features over time. Montana has a diversity of these soil-forming factors, particularly topographic, climatic, and parent material, resulting in over 700 soil types in the state (NRCS 1998).

Physiographic provinces are areas of similar topography, climate, and geology, which greatly influence soil development and vegetation. Montana is included in three physiographic provinces: the Great Plains, Central Rocky Mountain, and the Northern Rocky Mountain. Soil groups in Montana in the Great Plains Physiographic Province include glaciated plains, sedimentary bedrock plains and hills, low terraces, alluvial fans, and flood plains. The Central Rocky Mountain Physiographic Province includes the Beartooth Range and the Absaroka Range in the south central portion of the state. The Northern Rocky Mountain Physiographic Province includes mountains and low terraces, fans and floodplains, primarily west of the Continental Divide.

Great Plains Physiographic Province

Soils of the glaciated plains are found in the north/central and northeastern portions of the state (east of the Continental Divide and generally north of the Missouri River). Glacial till left behind by glaciers contains rock fragments which are indicative of the local bedrock from which it was derived. Common components of these soils are moderate to high water holding capacity, medium to fine soils textures with areas of wind-deposited soils high in silt and fine sand (Montagne *et al.* 1982).

Soils of the sedimentary bedrock plains and hills are located east of the Continental Divide and generally south of the Missouri River. General characteristics of the surface soils include soil textures that are primarily medium to moderately fine. Thin soils, and saline or alkaline soils are not uncommon. Soil moisture is limited, with 75 percent of the soils having low soil moisture during most of the summer. Soils are variable, but are generally well drained with medium runoff and moderate permeability (Montagne *et al.* 1982).

Low terraces, fans, and floodplains occur along major drainages in this region. These soils are highly variable, with surface layers ranging from deep to shallow, and textures from unconsolidated alluvium to deep, fine textured soils. Soils are generally well drained and some soils contain elevated levels of salts (Montagne *et al.* 1982).

Central Rocky Mountain Physiographic Province

Soils in the Beartooth Mountains are derived from

metamorphic rock, while soils in the Absaroka Range are from volcanic rock. Extreme topographic variation and resulting climatic variation create a diversity of soils, some of which are unique to this area. High elevation glacial basins and windswept ridges have soils ranging from deep to shallow, as do the river valleys that drain the high elevation peaks. Soils in the Beartooth Mountains are generally coarse to medium grained, deep and well drained, with slow runoff and moderately rapid permeability. Soils of volcanic origin in the Absaroka Range are generally deep and well drained with medium runoff and moderate permeability (Veseth and Montagne 1980).

Northern Rocky Mountain Physiographic Province

This area encompasses the western portion of the state, primarily west of the Continental Divide. Soils are highly variable due to large differences in parent material, topography, and climate. Volcanic ash forms a layer of variable thickness over the western portion of the state and produces soils which vary considerably from that derived from underlying rock. Saline and calcareous soils are present, primarily in southwestern Montana (Veseth and Montagne 1980).

Low terraces, fans, and floodplains have soils that vary greatly due to differences in parent material. Available water-holding capacity ranges from high to low, although soils are generally deep and well drained, with moderate to slow runoff and moderate permeability. Broad valleys along major drainages contain rich, productive soils (Montagne *et al.* 1982).

Vegetation

The characteristics of Montana's three physiographic provinces have greatly influenced the development of vegetation communities in the state by providing a variety of habitats suitable for a diversity of plant species. Habitat variations have resulted in a broad range of vegetation communities, including alpine and tundra; dense, lush forest; prairie potholes; expansive grassland; arid short grass prairie; rolling shrublands; and diverse riparian corridors along lakes, rivers, and streams.

Habitat types are land areas of specific soils, topographic, and precipitation configurations

which largely determine the plant species and resulting long-term plant associations or communities that grow within a habitat type. The higher the precipitation, the less influence soil has on the kind of vegetation that will grow on a specific site (Hansen 1998). There are over 605 range sites, 541 timber habitat types, and approximately 57 wetland and riparian habitat types in Montana (NRCS 1998, Hansen *et al.* 1995).

Riparian Areas and Wetlands

Riparian areas and wetlands make up a minor portion of the state (less than 5 percent), yet generally produce more biomass than other sites and are a critical source of biodiversity (Hansen *et al.* 1995). In the western, mountainous portion of Montana, riparian areas are commonly dominated by subalpine fir, spruce, Douglas-fir, black cottonwood, quaking aspen, a diversity of willow species, red-osier dogwood, sedge, and grass species.

East of the Continental Divide, the coniferous component along larger streams and rivers is generally absent. Along larger riparian corridors close to the Continental Divide (i.e., Great Falls), narrowleaf cottonwood dominates the overstory, with understory species dominated by red-osier dogwood, willow species, western snowberry, silver sagebrush, and shrubby cinquefoil, along with a variety of grass and sedge species. Further east, narrowleaf cottonwood is replaced by Great Plains cottonwood along the major river courses. Hardwood and coniferous draws are a fairly common riparian feature in the southeastern portion of the state. The hardwood draws are dominated by green ash, boxelder, and common chokecherry, while coniferous draws are dominated by ponderosa pine, common chokecherry, western serviceberry, and Oregongrape (Hansen *et al.* 1995).

Alkaline and saline soils are not uncommon in southeastern Montana and are present intermittently in riparian areas across the state. These soils support distinct plant communities, generally dominated by silver sagebrush, greasewood, inland saltgrass, prairie cordgrass, and western wheatgrass (Montagne *et al.* 1982).

Upland Vegetation

Northwestern Montana is generally mountainous and has more precipitation than much of the rest

of the state. Expansive forests dominated by subalpine fir, lodgepole pine, Douglas-fir, larch, grand fir, ponderosa pine, and aspen blanket this mountainous area. Broad river valleys and lake shores support populations of black cottonwood, paper birch, spruce, western red cedar, and western hemlock, with understory species which include blue huckleberry, devils club, snowberry, twinflower, beargrass, and a variety of grass and forb species (Pfister *et al.* 1977).

The southwestern mountains are less timbered, with broad shrub and grassland valleys. Dominant tree species are lodgepole pine, subalpine fir, spruce, and Douglas-fir, with lesser amounts of limberpine, ponderosa pine, Rocky Mountain juniper, spruce, black cottonwood, and aspen (Pfister *et al.* 1977). Big sagebrush, Idaho fescue, rough fescue, and bluebunch wheatgrass dominate the open parklands and valleys (Mueggler and Stewart 1980).

The island mountain uplifts in the central and southern portions of the state, such as the Bears Paw, Big Snowy, Little Snowy, Moccasin, Big Horn, and Pryor mountains, are forested with lodgepole pine, ponderosa pine, Douglas-fir, and subalpine fir at higher elevations. Understory species include pinegrass, grouse whortleberry, heartleaf arnica, Columbia needlegrass, kinnickinnick, lupine, and Wood's rose. Associated grasslands include Idaho fescue, little bluestem, prairie sandreed, Richardson's needlegrass, and sticky geranium (Montagne *et al.* 1982).

The northern glaciated plains are rolling topography punctuated with prairie potholes left by glaciers. While much of the northeastern portion of the state is planted to crops, rangeland is still abundant. The vegetation is primarily grass and shrubs, with trees limited to island mountains and riparian zones. Grasslands are dominated by needle-and-thread, green needlegrass, prairie junegrass, western wheatgrass, silver sagebrush, blue grama, fringed sagewort, and little bluestem (Ross and Hunter 1976).

Eastern sedimentary plains are rolling topography with sandstone outcrops and ridges. Along the eastern reach of the Missouri River, the plains are heavily dissected into badlands. Upland ridges are populated with ponderosa pine and Rocky Mountain juniper, with Douglas-fir limited to north-facing slopes. The forest understory is composed

of skunkbush sumac, western snowberry, common chokecherry, little bluestem, bluebunch wheat-rass, and sideoats grama. Grasslands are dominated by western wheatgrass, green needlegrass, little bluestem, big bluestem, blue grama, prairie sandreed, and bluebunch wheatgrass (Montagne et al. 1982). Upland areas of saline soils are not uncommon, and are dominated by greasewood, inland saltgrass, western wheatgrass, and alkali sacaton (Veseth and Montagne 1980).

Noxious Weeds

The Montana Department of Agriculture designates exceptionally invasive, persistent exotic plants as noxious weeds. Eighteen plants are listed as noxious weeds in Montana (Stepper pers. comm. 1998). Spotted knapweed and leafy spurge are the most problematic noxious weeds at this time due to their aerial extent, invasive nature, and persistence. Both species first appeared in the western part of the state and are rapidly spreading eastward. Leafy spurge is also migrating into the state from established populations in North Dakota and South Dakota. Noxious weeds spread along transportation and power corridors, and via livestock, wildlife, logging and farm equipment, and recreational vehicles.

Plant Species of Special Concern

There are 346 vascular plant species, 111 moss taxa, and one lichen species of special concern in Montana (Heidel 1997). Of these species, two species are listed as threatened under the federal Endangered Species Act of 1973. Species listed as threatened are, water howellia (*Howellia aquatilis*) found in Lake and Missoula counties and ladies tresses (*Spiranthes diluvialis*) found in Jefferson and Madison counties. Montana Natural Heritage Program (MNHP) classifies 215 vascular plant species as critically imperiled in Montana due to extreme rarity or because of some factor of biology making the species especially vulnerable to extinction (Heidel 1997). Montana has no laws requiring special management of state or private land with sensitive species designated by the MNHP. The Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) provide management criteria for species with agency specific, special designation on lands which they manage in Montana.

Game bird farms are typically part of an existing farm or ranch, or occur in areas where there has

been some disturbance of native vegetation either by cultivation, livestock activity, or construction on or near the site. Game bird shooting preserves are typically located in cropland, conservation reserve program (CRP) land, rangeland, or riparian areas, or a combination of these vegetation types. Some areas are actively used for grazing or are subject to some cropping to augment food availability for game birds.

Sensitive plant species are often found in atypical locations, such as sites with unusual soil types, rock outcrops, cliffs, aquatic habitat, or other areas often of limited extent with specific habitat characteristics (Heidel 1998). Although game bird farms and shooting preserves are typically found in sites that are more or less disturbed, specialized habitat hospitable to threatened or sensitive plant species may be present within the proposed sites.

WILDLIFE AND FISHERIES RESOURCES

Montana encompasses a large area and contains a wide range of habitats and topography. This great variation provides habitat for over 650 vertebrate wildlife species. Almost 400 of these species are birds. The diversity of wildlife and natural habitats have made Montana famous for hunting and fishing. Game bird farms and shooting preserves represent a relatively new privatized approach to upland game bird hunting in Montana.

Game bird farms and shooting preserves are distributed across the state of Montana and are located in a variety environmental settings. For the most part, game bird farms and shooting preserves are located in valley bottomlands that are relatively level and dominated by grasslands, grasslands converted to croplands, or cleared forested habitats. The following discussion of wildlife resources will be limited to species most likely to be associated with these habitats. Game bird farms and shooting preserves are not likely to affect aquatic environments, therefore, fisheries resources will not be discussed.

Three big game species are likely to overlap in distribution with game bird farms and shooting preserves (white-tailed deer, mule deer, and pronghorn antelope). Mule deer and white-tailed deer are widely distributed in Montana. Mule deer are generally associated with mountainous terrain

or river breaks habitat, but also occur in forested riparian habitat and rolling prairies. White-tailed deer are generally associated with riparian forests, but in western Montana also use low elevation, coniferous forests. Both mule deer and white-tailed deer are frequently seen in areas with a mixture of alfalfa, small grain crops, and natural habitats. Pronghorn are associated with extensive areas of sagebrush-grasslands and were once found both east and west of the Continental Divide. Pronghorn are tolerant of moderate agricultural conversion of grasslands, but are rarely abundant in areas with extensive small grain crops.

Elk tend to use areas with considerably more conifer cover than is common on shooting preserves and tend not to frequent areas with significant human activity. Moose occur in Montana with limited distribution and are restricted to densely forested riparian areas and coniferous forest habitat. Other big game species have limited distribution and occur in habitats not usually found on game bird farms or shooting preserves.

Predation of pen-reared birds is a constant threat. Released birds, protected from predators while in captivity, are not accustomed to predators and, as a result, may suffer higher predation rates than wild game birds (Leif 1994). Striped skunk, coyote, and red fox are the three primary mammalian predators frequenting habitats in which game bird farms may be located or where pheasants may be released on shooting preserves. Raccoon, now widespread in Montana and associated with lowland riparian habitats, also are a potential threat as a predator to game bird farm birds. Raptors which may also prey upon pen-reared birds after release include great horned owl, prairie falcon, golden eagle, goshawk, and northern harrier.

Upland game bird species found in areas used for game bird farms and shooting preserves include three native grouse species (sharp-tailed grouse, ruffed grouse, and sage grouse) and four introduced game bird species (ring-necked pheasant, Hungarian partridge, chukar, and wild turkey). Sharp-tailed grouse were formerly distributed throughout Montana, but the Columbian subspecies (found west of the Continental Divide) is now only found in the Tobacco Valley near Eureka (Brown 1971) and possibly the Blackfoot Valley. Sharp-tailed grouse also have declined in southwestern Montana, but elsewhere in Montana sharp-tailed grouse are

relatively common. Sharp-tailed grouse are associated with ungrazed to moderately grazed grasslands interspersed with brushy draws or scattered ponderosa pine forests. Sharp-tailed grouse may persist in these habitat settings with limited agricultural land conversion and livestock grazing. Sharp-tailed grouse have communal breeding areas called leks. Most nesting activity occurs within 1 mile of a lek (Kobriger 1965). In recent years, annual harvest of sharp-tailed grouse has fluctuated from about 30,000 birds to 90,000 birds, with the record harvest of 140,585 occurring in 1966 (Brown 1971).

Sage grouse are associated with extensive areas of sagebrush-grasslands. Big sagebrush is an important component of the winter diet of sage grouse and there is local migration into areas of dense sagebrush during winter. Sage grouse are not tolerant of agricultural conversion of sagebrush-grasslands or of sagebrush control. Sage grouse also use leks for communal breeding areas. Since about 1980, the harvest of sage grouse has declined from 40,000 birds to 8,000 birds annually. The record harvest of sage grouse was in 1964, when nearly 100,000 birds were taken (Martin and Pyrah 1971, MFWP 1991).

Ruffed grouse are associated with dense cover in aspen riparian areas in the mountain foothills of western and central Montana. Ruffed grouse also use low elevation coniferous forest. Ruffed grouse perform solitary displays in spring, and males generally remain year-long within a 0.5-mile radius of their display site (Mussehl *et al.* 1971). In recent years, annual harvest of ruffed grouse has decreased from about 40,000 to 20,000 birds, but as many as 85,642 were taken in 1962 (Mussehl *et al.* 1971, MFWP 1991).

Other native grouse species in Montana include blue grouse, spruce grouse, and white-tailed ptarmigan. Blue grouse and spruce grouse are associated with mountainous coniferous habitats in western and central Montana. Blue grouse are seasonally migratory, occupying high elevation forests during fall and winter, and moving to low elevation forests during spring courtship and summer brood rearing. White-tailed ptarmigan occur in Montana with only limited distribution in alpine tundra in Montana's northern mountain ranges. Annual harvest of spruce and blue grouse has declined for several years, decreasing from about 45,000 birds (combined harvest) to about 20,000 birds. In 1979, however, over 110,000 birds were harvested (Mussehl *et al.* 1971, MFWP 1991).

Four introduced upland game bird species, now naturalized in various areas of Montana, include the ringed-necked pheasant, Hungarian partridge, chukar, and wild turkey. Ringed-necked pheasant are the most abundant and widespread of these birds, introduced into Montana prior to 1895 (Weigand and Janson 1976). Ringed-necked pheasants are now distributed throughout Montana, both east and west of the Continental Divide. Montana's pheasant population arises from numerous introductions and reintroductions by private landowners and MFWP. Between 1929 and 1983, MFWP operated from one to three pheasant farms, but discontinued pheasant stocking because only about 15 percent of the stocked pheasants were harvested, making the cost per harvested bird unacceptably high (Weigand and Janson 1976).

Ringed-necked pheasant are associated with agricultural areas supporting a mixture of cereal grains, alfalfa, grass hay, native grasslands, brush, tree cover, and wetland vegetation. Pheasants feed primarily on grain, but consume a variety of other plant and animal matter. There have been reports of localized crop damage by pheasants in areas of high population densities (Weigand and Janson 1976). Pheasants are a solitary territorial breeder, with males attracting females into their territory by calling and displays. Hen pheasants are prolific egg layers, laying eggs at random on the ground, in nests of other gallinaceous birds and waterfowl, and in nests of other hen pheasants (Weigand and Janson 1976). Pheasants are also persistent re-nesters. The incubation period of pheasant eggs is 23 days which is two days less than for sharp-tailed grouse and prairie chickens. The pheasant is among Montana's most popular game bird and annual harvest has increased from about 50,000 birds to 150,000 birds in recent years. The peak annual pheasant harvest of 392,630 birds occurred in 1954 (Janson *et al.* 1971).

Hungarian partridge, or gray partridge, were officially introduced into Montana between 1922 and 1926, although a specimen of this species was collected near Plains in 1915 (Trueblood and Weigand 1971). Hungarian partridge are associated with grasslands and small grain crops and are primarily found in agricultural areas of Montana east of the Continental Divide, where Hungarian partridge are considered abundant in north-central and northeastern counties. Hungarian partridge are also found in low numbers in western valleys. The Hungarian partridge harvest

has fluctuated around 50,000 birds for the past several years, with a peak harvest of 164,000 birds in 1963 (Trueblood and Weigand 1971, MFWP 1991).

Chukar, associated with arid rocky shrublands, were introduced into Montana with limited success. Chukars, due to their habitat specificity, have not been a significant segment of the Montana upland game bird harvest. Annual harvest has fluctuated around 1,000 birds in recent years (Whitney 1971, MFWP 1991). Bobwhite quail are released annually in Montana for dog training, but are not considered a resident species due to unsuccessful winter survival rates (MFWP 1991).

Wild turkey were introduced into Montana; however, unlike other introduced upland game birds, turkeys are native to North America. Four sub-species of turkeys are recognized in the United States -- eastern, Florida, Merriam's, and Rio Grande turkeys. The Merriam's sub-species is native to the southwestern United States and was first introduced into Montana by MFWP near Lewistown in 1954 (Greene and Ellis 1971). Three other releases were made between 1955 and 1957. All subsequent releases of wild turkeys by MFWP were wild-caught birds from existing Montana populations. The eastern sub-species were privately introduced in some areas. Wild and domestic hybrids also may be present in Montana (Herbert 1998). Wild turkey in Montana are associated with forested riparian habitats and open ponderosa pine forests with hardwood draws. A key aspect of winter survival in Montana is a source of supplemental food which may be obtained from grain fields adjacent to riparian forests or where cattle are fed during the winter. The annual harvest of turkeys in Montana has been increasing steadily since introduction. Over 4,000 birds are shot annually (Greene and Ellis 1971, MFWP 1991).

Other bird species classified as upland game birds in Montana are mourning dove and common snipe. However, these two species vary significantly in life form and life history from other upland game bird species and, therefore, are not addressed in this document.

Diseases

Raising of upland game birds results in conditions that could potentially promote the spread of contagious diseases. For example, a pheasant farm operated by MFWP in Glasgow had a

botulism outbreak in 1960 that killed 10,000 birds and had to be closed because of infected soil (Weigand and Janson 1976). **Table 3-1** lists some of the important upland game bird diseases.

Some diseases, such as aspergillosis, have the potential to infect a wide variety of bird species, while others, such as blackhead disease, appear to be restricted to a single species or one group of birds, primarily turkeys (Schwartz 1995). Disease outbreaks in the wild are often difficult to detect or document unless there is a dramatic epidemic among a concentrated bird flock.

USDA operates NPIP, a disease certification program for commercial hatcheries that has been effective in reducing the incident of fowl typhoid and pullorum among domestic fowl. At present, game bird farms in Montana are not required to be NPIP certified, nor are game birds released into the wild required to be NPIP certified or otherwise tested for typhoid and pullorum. However, game birds imported into Montana must be from an NPIP-certified hatchery or otherwise tested.

Table 3-1
Important Game Bird Diseases

Disease	Responsible Agent	Game Birds Affected	Diagnostic Test for NPIP*
Aspergillosis	Bacteria	All	No
Avian influenza	Virus	All	No
Avian pox	Virus	All	No
Avian tuberculosis	Bacteria	All	No
Blackhead	Protozoan	Turkey	No
Botulism	Bacteria	All	No
Coccidiosis	Protozoan	All	No
Cryptosporidiosis	Protozoan	Quail	No
Equine encephalitis	Virus	All	No
Fowl colera	Bacteria	All	No
Fowl typhoid	Bacteria	All	Yes
Mycoplasmosis	Bacteria	All	No
New Castle	Virus	All	No
Pullorum	Bacteria	All	Yes

* NPIP = National Poultry Improvement Plan

Game Bird Stocking

Non-native game birds have been stocked in Montana and most other states throughout this century. Several studies have investigated harvest, movement, survival, and reproduction of stocked pheasants. Stocked pheasants tend to

have low survival (3 percent annual survival), low dispersal potential (90 percent move less than 1 mile), and a harvest rate inversely correlated to time since release (Weigand and Janson 1976). Approximately 10 hatchery hen pheasants released in the spring of 1 year are necessary to equal the reproductive effort of 1 wild hen pheasant in the following year (Leif 1994). Annual survival of wild hen pheasants is about 30 percent

compared with 3 percent for stocked hen pheasants (Leif 1994). A considerable body of data shows that very few stocked pheasants survive through their second year (Weigand and Janson 1976).

The shorter the time interval between release and hunting of pheasants, the greater the harvest of released birds. Data collected by MFWP from the 1940s through the 1970s show approximately a 15 percent harvest rate for pheasants released in late summer and less than 1 percent of stocked pheasants are harvested the following year (Weigand and Janson 1976). The highest take of hatchery pheasants comes when birds are released only hours or even minutes before a hunt, with harvest in such cases approaching 100 percent (Weigand and Janson 1976).

Studies have also shown that the harvest of hatchery raised pheasants is highest (50% and higher) when the birds are released just prior to or during the hunting season. Younger birds (9-14 weeks old) released one to three months before the hunting season were harvested at substantially lower rates (13-24%) (MacNamara and Kozicky 1949, Harper *et al.* 1951, Weigand 1976). This differential survival rate may be a function of older birds surviving better and less time for dispersal to occur.

Harvest rates of wild pheasants on shooting preserves in Montana are not officially recorded. Data, however, are available from South Dakota shooting preserves and from MFWP during years that the State stocked pheasants to provide an estimate of the number of wild pheasants harvested on game bird shooting preserves. This information shows that the percentage of wild birds in the harvest varies with the quality of natural habitat, time since released to hunting, and size of the shooting preserve (Weigand and Janson 1976, Thompson 1998). The incidence of wild birds in the harvest is low if the shooting preserve is located in poor pheasant habitat, birds are released immediately before the hunt, and the shooting preserve is large (Thompson 1998). In such situations, wild pheasants generally account for less than 20 percent of the harvest (Thompson 1998). Small shooting preserves located in good pheasant habitat may result in a consistent high harvest of wild pheasants, accounting for more than 50 percent of the harvest (Thompson 1998, Remington 1998).

Interspecies Competition and Hybridization

As early as the 1930s, it was recognized that introduced pheasants potentially competed with native grouse (Bennett 1936, Sharp 1957). It has only been in recent years that some of the mechanisms of competition between pheasants and native grouse have been investigated. Hen pheasants are known to lay eggs in the nests of the greater and lesser prairie chickens (nest parasitism). Pheasants hatch two days ahead of prairie chickens, and prairie chickens can raise one or more pheasant chicks (Shackford *in press*). These pheasants become imprinted on prairie chickens and are introduced to traditional leks. Cock pheasants are larger and more aggressive than prairie chicken cocks, and may drive off or even kill prairie chicken cocks (Shackford *in press*, Westemeier *et al.* 1998). Pheasants also may interbreed with prairie chickens (Shackford *in press*). This relationship has not been documented with sharp-tailed grouse, but there is potential for similar interactions since prairie chickens and sharp-tailed grouse are sibling species.

The annual release of a large number of pheasants in a small localized area also may result in competition for food and cover between wild grouse and hatchery pheasants. Wild grouse are subject to natural regulation by climatic events, habitat conditions, food availability, and predation and disease. Population numbers fluctuate year-to-year based on the interaction of these factors. Hatchery pheasants; however, are not subjected to these variable environmental factors (Westemeier *et al.* 1998). Release of pheasants during a year of poor seed production or minimal hiding cover may result in competition for food or cover with native grouse and may increase predator populations in the area.

Naturalized pheasants in Montana represent the product of multiple releases and many years of natural selection to produce birds capable of surviving in the wild. Hatchery pheasant breeding stock represents many years of artificial selection for birds that survive and reproduce well in penned situations. Differences between natural and artificial selective processes can be seen in differential survival and reproduction of wild and hatchery reared birds. There is concern that the consistent release of hatchery pheasants into an area with wild naturalized pheasants would result

in genetic dilution of wild pheasants over a period of years, resulting in a pheasant population less adapted to the natural habitats and climate of a specific area and being expressed as lower pheasant numbers (Leif 1994). Chukar and Hungarian partridge are not as aggressive as ring-necked pheasant and interspecies competition associated with these birds has not been documented like it has for pheasant.

Threatened and Endangered Species

Seven Federally listed threatened or endangered terrestrial wildlife species occur in Montana (Table 3-2). Peregrine falcon and bald eagle are scheduled to be delisted during 1999. No Federally listed gallinaceous birds occur in Montana. Because the operation of game bird farms and shooting preserves are not anticipated to affect threatened and endangered species, these species are not discussed further in this document.

RECREATION

Montana is recognized throughout the United States as a prime fishing and hunting destination, primarily because of the abundance and diversity of fish and game species that can legally be taken. In Montana, big game hunters can pursue white-tailed

and mule deer, elk, pronghorn, moose, black bear, mountain goat, big horn sheep, and mountain lion. Upland bird hunters can take sharp-tailed grouse, blue grouse, spruce grouse, sage grouse, ruffed grouse, quail, ring-necked pheasant, Hungarian partridge, chukar partridge, and turkey. Migratory bird hunters can harvest over 10 species of wild duck, 4 species of geese, swans, cranes, snipe, and mourning doves. Resident hunters can also legally take small game such as rabbit, gophers, and raccoon as well as predators like coyote and fox. Non-resident hunters are not required to obtain a trapping permit to take non-game species. Anglers can take 5 species of trout, mackinaw, salmon, grayling, whitefish, walleye pike, perch, northern pike, pickerel, muskie, bass, paddlefish, sturgeon, ling, panfish, catfish, and others.

The sale of conservation licenses increased slightly during the period 1987 to 1996; however; the number of resident conservation licenses sold during this same period decreased by about 7 percent. Approximately 283,000 resident conservation licenses were sold during 1987, while approximately 263,000 were sold during 1996. Non-resident conservation license sales increased about 23 percent throughout the same period. Approximately 150,000 non-resident licenses were sold during 1986, while approximately 185,000 were sold during 1996.

**Table 3-2
Federally Listed Threatened and Endangered Terrestrial Species in Montana**

Species	Status
Grizzly bear	Threatened
Gray wolf	Threatened
Black-footed ferret	Endangered
Peregrine falcon	Threatened
Bald eagle	Threatened
Piping plover	Threatened
Interior least tern	Threatened

Overall, the popularity of upland game bird hunting in Montana has risen over the course of the previous 10 years, primarily due to an increase in non-resident bird hunters. The number of days upland bird hunters spend afield has also

increased. During 1993, upland bird hunters spent 191,828 days afield compared to 226,182 days afield during 1995, an increase of approximately 18 percent.

Based on a survey conducted by MFWP (1992), the most important reasons provided by hunters for hunting birds included being outdoors, being in a natural setting, and for the solitude. Less hunters pursued upland game birds to learn about birds, test their hunting skills, or for the meat. When bird hunters were asked why they choose a specific hunting area, the most important reasons given were an abundance of birds, few hunters, familiarity of the area, to hunt with family and friends, variety of birds, and good public access. Least important reasons why hunters hunt where they do included the availability of commercial services, availability of facilities, and proximity to home.

NOISE

Residents have complained about noise generated by shotgun fire at shooting preserves (MFWP files). Noise generated by a 12-gauge shotgun at a distance of 1,000 feet ranges from approximately 68 to 81 dBA (A-weighted Sound Exposure Level), depending on the orientation relative to the muzzle (Pater et al. 1996). **Table 3-3** shows typical noise levels generated by 12-gauge shotguns at various distances and orientations from the muzzle. For comparison, **Table 3-4** lists noises frequently experienced in daily activities.

TABLE 3-3
Average Sound Level from 12-Gauge Shotgun

Distance from Muzzle	ORIENTATION RELATIVE TO MUZZLE		
	Front	Side	Rear
1 yard	130.7 dBA	120.9 dBA	117.8 dBA
100 feet	101.0 dBA	101.0 dBA	88.1 dBA
1,000 feet	81.0 dBA	71.2 dBA	68.1 dBA

dBA = A-weighted decibel sound scale.
Source: Pater et al. 1996.

TABLE 3-4
Relative Scale of Various Noise Sources and Effect on People

Noise Level (dBA) ¹	Common Indoor Noise Levels	Common Outdoor Noise Levels	Reference Level	Public Reaction
110	Rock band			
105		Jet flyover @ 1000 ft.		
100	Inside New York subway train			
95		Gas lawn mower @ 3 ft.		
90	Food blender @ 3 ft.		4X as loud	Letters of Protest
80	Garbage disposal @ 3 ft., Shouting @ 3 ft.	Noisy urban daytime	2X as loud	Complaints likely
70	Vacuum cleaner @ 10 ft.	Gas lawn mower @ 100 ft.	Reference	Complaints possible
65	Normal speech @ 3 ft.	Commercial area, heavy traffic @ 300 ft.		
60	Large business office		1/2 as loud	Complaints rare
50	Dishwasher in next room	Quiet urban daytime	1/4 as loud	Acceptance
40	Small theater, large conference room	Quiet urban nighttime		
35		Quiet suburban nighttime		
33	Library			
28	Bedroom @ night			
25	Concert hall (background)	Quiet rural nighttime		
15	Broadcast and recording studio			
5	Threshold of hearing			

¹ dBA = A-weighted decibel sound scale.
Source: Hatano 1980.

ACCESS AND LAND USE

Little space is typically needed for a game bird farm, therefore, game bird farms are not addressed relative to access and land use in this PEIS. Access to the general public for hunting is available on approximately 56.7 million acres, or 60 percent of land in the state (MFWP 1998a). This includes 4 to 6 million private acres enrolled in cooperative agreements with MFWP, such as Block Management agreements and upland gamebird enhancement projects. From 1995 to 1996, acreage of Block Management agreements increased from 3.9 to 5.8 million when MFWP adopted rules implementing the Hunter Enhancement Program. The Hunter Enhancement Program is designed to gain free public access to private land by paying incentives to landowners enrolled in Block Management agreements. The Hunter Enhancement Program is funded by revenue generated through sales of some non-resident big game combination and deer licenses.

Landowners sometimes close large blocks of private land to public access for financial gain through fee hunting, preservation of game for their personal use, or avoidance of adverse impacts caused by public use, such as open gates, noxious weeds, and crop damage. An estimated 27.7 million acres, or 47 percent of all private land is currently closed to public access in Montana (Irby *et al.* 1997).

Approximately 12 percent of ranches that vary in size from 1,000 to 10,000 acres charge fees for public use (MFWP 1998a). Some of these ranches also offer guide and outfitting services along with access to the land. Fee hunting occurs on about 8 percent of private farms and ranches where some form of hunting is allowed.

As of July 1999, there were 71 shooting preserves licensed in Montana. Assuming that the average size of shooting preserves is 560 acres (Wildlife Harvest 1996), then shooting preserves currently occupy approximately 45,360 acres of private land in Montana. This equates to approximately 0.05 percent of the total acreage in Montana and less than 0.1 percent of private land in Montana.

SOCIOECONOMIC CONDITIONS

Population and Demographics

Montana was the 15th slowest growing state in the nation during the 1980s; however, with an improved economy during the 1990-96 period, the population increased and it became the 14th fastest growing state. The population of the state grew by 10 percent (80,307 people) during this 6-year period, with two-thirds of the growth attributable to immigration and one-third due to natural change (births minus deaths). The majority of the immigrants settled in the western and southwestern portions of the state, while the eastern part of the state, with already a large number of counties and small populations, declined in population (vonReichert and Sylvester 1997).

In 1997, the estimated state population was 878,810. Yellowstone County was the highest populated county with 125,771 people, while Petroleum County was the lowest populated county with 518 people (Montana Department of Commerce, Census and Economic Information Center 1998). Yellowstone County's population is concentrated in Billings, the largest city and trade center in the state. The state population is projected to continue its upward trend, growing about 2 percent a year until reaching 1,015,000 persons by year 2010 (Polzin 1998).

As the "baby boom" generation ages, the 45-to-64 year old age group in Montana is becoming much larger. In 1980, the median age of Montanans was 29.0 years, increasing to 33.8 years in 1990, and 36.5 years in 1996. The educational attainment level of Montanans, 25 years old and older, also is rising. In 1980, 74.4 percent had a high school education, climbing to 81.0 percent in 1990 (Montana Department of Labor and Industry 1997a).

American Indians make up approximately 6 percent of the state's population. The 10 federally recognized tribes represented on the reservations are: Blackfeet Reservation (Blackfeet Tribe); Crow Reservation (Crow Tribe); Flathead Reservation (Salish and Kootenai tribes); Fort Belknap Reservation (Gros Ventre and Assinboine tribes); Fort Peck Reservation (Assinboine and Sioux tribes); Northern Cheyenne Reservation (Northern Cheyenne Tribe); and Rocky Boy's Reservation (Chippewa and Cree tribes). Although not yet federally recognized and without a reservation, the

Little Shell Tribe, also referred to as the Landless Indians, is one of the largest tribes in the state (Bryan Jr. 1985).

A 1990 survey of upland game bird hunters conducted by the Montana Department of Fish, Wildlife and Parks (1992) found significant differences between socioeconomic characteristics of resident and non-resident hunters. Non-resident hunters are generally older than resident hunters, non-residents have hunted upland game birds longer than their resident counterparts, average incomes of non-resident hunters are significantly higher than resident hunters (\$54,600 and \$37,800, respectively), and non-resident hunters belong to hunting/conservation organizations more often than resident hunters.

Employment and Income

Agriculture remains an important basic industry in Montana, generating approximately \$2 billion in cash receipts and government payments in 1996, an increase of about 9 percent over 1995 cash receipts. In 1996, cattle prices fell to the lowest received over the last 43 years; however, in 1997, prices began to rebound and are expected to increase over the next few years (Baquet 1998).

Montana's wildlife significantly contributes to the state's economic well-being. In 1990, hunting generated an estimated \$310 million in hunter-related retail sales, supported 4,100 jobs, provided \$71 million in personal income, and produced \$18 million in tax revenues. Trip-related expenses spent by hunters during the estimated 2.26 million hunting days they spent afield hunting big game, waterfowl, and upland game birds amounted to \$193 million in 1995 (Montana Department of Fish, Wildlife and Parks 1998a).

In 1996, the services sector was the largest employer in Montana, employing 28.0 percent of the state's workers, followed by retail trade (22.9 percent) and government (19.0 percent). Although the mining industry had the lowest average annual employment in the state (1.2 percent), the average annual wage of \$41,565 was the highest wage among Montana's major industries. The retail trade sector was second in average annual employment, but paid the lowest average annual wage of \$12,382 (Montana Department of Labor and Industry 1997b).

Eighty-four percent of the occupations in Montana have an average hourly wage below the national norm. In 1997, the average hourly wage in Montana was \$10.96, or \$1.30 an hour less than the national average. Occupations that pay the best wage are associated with natural resource industries (mining, oil and gas, and logging), whereas jobs in radio, television, journalism, and teaching are at the bottom of the scale when compared with the national average (The Independent Record 1998).

The annual average state unemployment rate for 1997 was 5.4 percent, slightly lower than the 1995 average rate of 5.9 percent. In 1997, Glacier County experienced the highest unemployment rate (13.8 percent) among the state's 56 counties, while Daniels County had the lowest rate of 1.7 percent (Montana Department of Labor and Industry 1998).

Per capita personal income in Montana was \$19,278 in 1996, about 20 percent lower than the national average of \$24,436. Petroleum County had the lowest per capita personal income (\$9,766) and Toole County had the highest (\$22,825) in 1996 (U.S. Department of Commerce 1998).

Community Services

Community services (such as fire protection, law enforcement, public water supply, wastewater treatment, and solid waste) in cities throughout the state are provided by county, city, or combination county/city governments. In smaller communities, volunteers oftentimes staff local fire departments, ambulance services, and quick response units. In the more rural areas of Montana, where public water supply and sewage disposal services are not available, individual wells and septic tank systems are used.

Public education for pre-kindergarten through grade 12 is provided through approximately 348 public school districts under the auspices of the Montana Office of Public Instruction (Montana Office of Public Instruction 1998). Elementary school enrollment (pre-kindergarten through grade 8 including ungraded) for the 1997-98 school year was 111,839 and high school enrollment (grades 9 through 12 including ungraded) was 50,325 (Love 1998).

A variety of health care services are available throughout the state; however, some rural

communities are at least 100 miles from the nearest medical center which may be in a neighboring state. Attracting and keeping physicians is a challenge for many rural Montana towns. In 1998, there were 48 licensed hospitals in the state.

Government and Public Finance

The Montana State Legislature, for the most part, controls what services the state's 56 counties can provide and regulates the amount of money spent on these services and the manner in which the money can be procured. County government income comes from a variety of sources, such as taxes and assessments, licenses and permits, intergovernmental transfers, charges for services, fines forfeitures, and investment earnings. The primary revenue producer for the counties is local property taxes (Montana Association of Counties 1990).

Property taxes are assessed depending on the use of the land. Parcels of land with 160 acres or more are classified as agricultural land and have the lowest appraisal value (Reese 1998). The majority of game bird farms and shooting preserves in Montana would most likely have an agricultural status with respect to property taxation.

Upland game bird farms and shooting preserves may be assessed a per capita tax, similar to a poultry farm, based on the number of birds on the game bird farm or shooting preserve. Game bird farm and shooting preserve owners could be assessed \$.02 per bird, or a minimum fee of \$5.00 (Ferguson 1998).

Housing

The predominant type of housing in 1990 was single-family detached units, which comprised 65.8 percent of the Montana's 361,155 total housing units. Multi-family units represented the second largest type of housing at 15.7 percent, while mobile homes comprised 15 percent of the total housing units. Type of housing varies around the state. In rural Montana, for instance, there is a higher concentration of single-family units and mobile homes than in the major cities (Montana Department of Commerce, Local Government Assistance Division, 1993).

Social Well-being

In general, Montanans are either multi-generational descendants of pioneers or people who visited the area, liked it, and stayed. To eke out a living in the state, residents often must be very creative and accept lower wages than in other parts of the country, reflecting a quality-of-life premium people are willing to pay to live in Montana.

Cultural diversity and traditions of Montana reflects the melding of many nations. Although American Indians make up the largest minority group within the state, small pockets of ethnic groups such as Germans, Greeks, Finnish, Hispanics, Serbians, Croatsians, French, Dutch, Italians, Irish, Yugoslavians, and Asians also are evident throughout the state. Some of the groups speak their native language with regularity and celebrate their heritage through events such as Pow-wows (American Indian spiritual gathering to share, honor, and preserve a rich heritage through dancing, singing, and visiting friends and relatives), El Cinco de Mayo (May 5th Hispanic celebration of the 1862 defeat of the French army by Mexicans), and Badnjak (Serbian Christmas Eve on January 6th when Serbians gather for the ceremonial burning of the Yule log) (Tirrell 1988).

Also evident in Montana are Hutterites, who established their first Montana colony in 1937 near Lewistown. The Hutterites are a Mennonite sect whom are firm in their belief of adult baptism, communal living, and their conviction to not bear arms or become involved in prevailing socioeconomic institutions (Tirrell 1991).

Quality-of-life in Montana is characterized by a strong "sense of community" which is strengthened by residents' rural lifestyles. Many Montanans volunteer their time to numerous charitable, civic, and recreational groups and demonstrate their community cooperation through their efforts to expand the local economic base, develop youth recreational facilities, organize help for local families who have suffered hardships, and support of major community events. Montanans value their space and the outdoor recreational opportunities that the natural environment and its resources provide, such as hunting, fishing, hiking, skiing, river floating, boating, snowmobiling, photographing, picnicking, wood gathering, wildlife and landscape viewing, and wild berry picking.

Out-of-state residents relocating to rural communities of Montana may bring with them environmental values supported at the national level, likely creating more land use conflicts and polarization among people with differing interests in public land and recreational activities. Conflicts may arise on topics such as wilderness versus mineral development, grazing versus riparian restoration, timber harvest versus wildlife habitat, hiking versus all-terrain vehicles, and consumptive versus non-consumptive visitors (Favinger and Trent 1993).

Upland Game Bird Farms and Shooting Preserves

Nationwide, upland game bird shooting preserves are increasing in numbers and schools are emerging to provide instruction for professional shooting preserve managers in disciplines ranging from game bird propagation and wildlife management to human relations and the principles of marketing (Black's Wing & Clay 1994). Shooting preserves offer extended hunting seasons, larger bag limits, and usually limit the daily number of hunters on the preserve. Preserves are open to the general public or hunters with private memberships, and include amenities such as trained hunting dogs, airport pickup, home-cooked meals, clubhouse, lodging, sporting clays, and game bird processing (Black's Wing & Clay 1996).

Upland game bird farms and shooting preserves throughout Montana are generally small operations with few employees outside of family members (Zackheim 1998). Approximately 10 years ago, there were 8 shooting preserves operating in Montana and, by 1995, the number of licensed shooting preserves had increased to 53, averaging 560 acres each (Wildlife Harvest 1996). Since 1995, the number of shooting preserves has risen to 71, or a 34 percent increase over the number operating in 1995. Private shooting preserves range in size from 160 acres to 1,280 acres (Montana Department of Fish, Wildlife and Parks 1998a).

MFWP revenues derived from licensing shooting preserves varies according to the size of the preserve (i.e., \$50.00 for the first 160 acres plus \$20 per 160 acres thereafter). The maximum acreage allowed by law for an upland game bird shooting preserve is 1,280 acres, or a maximum of

\$190.00 for licensing. Using the current number of shooting preserves of 71 and the average acreage of 560 acres per shooting preserve, annual revenues generated through licensing of shooting preserves would be approximately \$7,810.00.

During the 1997-98, seven-month period that shooting preserves were in operation, an estimated 1,370 hunters used the services of 41 shooting preserves throughout Montana. Based on the assumption that these data are representative of the number of hunters using shooting preserves, statewide use then would be approximately 2,740 hunters annually.

Furthermore, a conservative estimate of non-resident and resident hunters using shooting preserves would be 75 percent non-resident and 25 percent resident. Non-resident hunters pay \$60.00 (\$5 wildlife conservation license and \$55 upland game bird license) to hunt upland game birds and resident hunters pay \$10.00 (\$4 wildlife conservation license and \$6 upland game bird license) for the season. Therefore, \$123,300 for non-resident and \$6,850 for resident upland game bird license (excluding turkey license) fees would be generated as a result of shooting preserves if the upland game bird licenses were purchased for the sole purpose of hunting on the shooting preserves. It is unknown, however, if the hunters purchased the upland game bird licenses to hunt on both shooting preserve and non-shooting preserve lands.

Non-resident hunters also may opt to purchase a 3-day non-resident shooting preserve bird hunting stamp for \$20.00. In 1996, 132 upland bird shooting preserve 3-day stamps were sold, compared with 100 stamps in 1990 (Montana Department of Fish, Wildlife and Parks 1998b). Revenues generated in 1996 for the sale of non-resident upland bird shooting preserve 3-day stamps were \$2,640.00.

In a recent survey of 64 game bird farm operators in Montana, 46.9 percent indicated they had no sales of game birds in 1997, 20.3 percent had sales for less than 100 birds, 18.8 percent had sales of 100 to 1,000 birds, 12.5 percent had sales of 1,000 to 10,000, and 1.5 percent had sales greater than 10,000 birds. Based on these data, average number of birds sold per game bird farm was 1,345, while total number of birds sold by the 64 game bird operators was 86,101 of which one operator reportedly had a sale of 60,000 birds

which one operator reportedly had a sale of 60,000 birds (Montana Department of Fish, Wildlife and Parks 1998c).

A \$25.00 fee is charged to game bird farm owners for licensing the game bird farm the first year and

a \$15.00 renewal fee is charged for years thereafter. An estimated \$2,475.00 in revenues was generated for first year licensing of the 99 game bird farms in Montana, whereas \$1,485.00 for renewal fees of the 99 upland game bird farms was generated in years thereafter.

CHAPTER 4

PROGRAM ALTERNATIVES

Four alternatives were selected for consideration in this PEIS: Alternative A (No Action Alternative), Alternative B (Categorical Exclusion from MEPA Review), Alternative C (Categorical Exclusion From MEPA Review With Required Mitigation Measures), Alternative C (Game Bird Regulatory Program Changes). Each alternative is described below.

ALTERNATIVE A: NO ACTION ALTERNATIVE

MFWP would continue to administer the game bird farm and game bird shooting preserve programs as they are currently established. Under this alternative, game bird farm and shooting preserve owners/operators must comply with existing laws and regulations and new game bird farms and shooting preserves would be subject to individual MEPA review.

Shooting preserve owners/operators would be required to maintain records of the number of resident and non-resident hunters, number of birds released by species, number of pen-reared birds harvested by species, and number of wild birds harvested by species, and provide these data to MFWP annually.

ALTERNATIVE B: CATEGORICAL EXCLUSION FROM MEPA REVIEW

Alternative B would categorically exclude game bird farms and some shooting preserve applicants from MEPA review under a specified set of conditions. These conditions would include compliance with all laws and rules currently applicable to game bird farms and game bird shooting preserves (see regulatory summary

previously described) and, for shooting preserves, a checklist evaluation of the proposed action determining that no conditions exist which would impact wild bird populations or public hunting opportunities, and there are no impacts on the human environment (**Table 4-1**). Game bird farms would be required to develop a weed control plan in conjunction with their local weed control district.

It is recommended that applicants should contact the Montana Natural Heritage Program for information regarding presence of federally listed threatened and endangered species or Montana sensitive plant species within the proposed game bird farm or shooting preserve. If protected species are known to exist in the vicinity, care should be taken to avoid those locations in siting of buildings and roads, or other disturbance associated with the game bird farm or shooting preserve.

Shooting preserves that do not qualify for the categorical exclusion based upon potential impacts would require a site-specific MEPA review to mitigate impacts.

ALTERNATIVE C: CATEGORICAL EXCLUSIONS FROM MEPA REVIEW WITH REQUIRED MITIGATION MEASURES

This alternative would expand on Alternative B by identifying required mitigation measures developed to address potential impacts associated with proposed facilities that would otherwise not meet the criteria for categorical exclusion from MEPA review. Failure to mitigate potential impacts would result in a requirement to prepare a site-specific EA or EIS, as appropriate.

**Table 4-1
Game Bird Shooting Preserves
Checklist for Determination of No Environmental Impact**

	Impact Assessment	
	No Impact	*Minor or Potentially Significant Impact (EA or EIS required)
Potential introduction of new game bird species		
Changes in diversity or abundance of wild bird populations		
Potential introduction of disease to wild game bird populations (if birds are not NPIP certified)		
Abundant wild game bird population in the area suitable for hunting		
Noise impacts to neighbors		
Public safety concerns from shooting		
	Criteria for Immediate Denial of License	
	No	Yes
Will result in substantially reduced public hunting opportunities in the area		
*Shooting preserve located on federal CRP land		

* The US Department of Agriculture is currently considering a bill that would prohibit operation of a shooting preserve on federal CRP land. Final determination is expected by years end.

Mitigation measures would include one or more of the following:

Mitigation Measure C-1

- All game birds released on shooting preserves or otherwise authorized by the department would be required to be blood tested for pullorum-typhoid or come from an NPIP-certified game bird farm. Reporting forms will be modified to require NPIP information.

Montana is classified as a pullorum-typhoid free state and, therefore, game birds shipped into or out-of-state must be tested and certified as pullorum-typhoid free. This is typically accomplished by game bird farm operators participating in the National Poultry Improvement Plan (NPIP). Currently, blood testing is not required for game birds raised and released in Montana. Inclusion of this requirement as a

mitigation measure would address the concern regarding potential for pen-reared birds to transmit diseases to wild birds and other animals. Mitigation measure C-1 would apply to new shooting preserves seeking a license and existing shooting preserves subject to license renewal.

Mitigation Measure C-2

- Pen-reared turkeys could not be released on new shooting preserves.

Pen-reared turkeys are known to lack wild behavior (Lewis 1987) and become a nuisance around residences (John McCarthy, MFWP biologist pers. commun.). Inter-breeding of pen-reared turkeys and wild turkeys would likely result in a less wild hybrid that would learn similar behavioral traits from its parent. Pen-reared turkeys have poor survival characteristics in the wild (Lewis 1987) partly due to a genetic selection for docile animals. These birds could potentially introduce undesirable genetic traits into wild

turkey populations. In addition, pen-reared turkeys may not necessarily be the Merriam's wild turkey subspecies that exists in Montana. All four turkey subspecies found in the United States, plus the domestic turkey, will interbreed, and there is no practical way to regulate subspecies and hybridization in captive situations. Pen-reared turkeys are documented to carry many diseases and parasites (Schorr et. al. 1988, Davidson and Wentworth 1992), and their release into the wild can spread diseases to wild turkey populations (Powell 1965, Kenamer 1987). For these reasons, 45 of 49 states with wild turkey populations have already banned or restricted the private release of pen-reared turkeys, and all state conservation agencies have abandoned captive rearing programs (Kenamer et al. undated).

Mitigation Measure C-3

Mitigation measure C-3 (including measures C-3a, C-3b, and C-3c) would only apply to new shooting preserves.

- New shooting preserves would not be approved if located in habitat supporting well established wild bird populations, as determined by regional MFWP staff, of the same species as those to be released on the shooting preserve, unless each of the following conditions is met:

Mitigation Measure C-3a

- If the proposed shooting preserve is located in habitat that supports a well established wild pheasant population and pheasants are to be released on the shooting preserve, only rooster pheasants could be harvested on the shooting preserve.

Compliance with this mitigation measure would prevent the unlawful harvest of wild hen pheasants on new shooting preserves. A facility licensed in an area that did not have a well established wild game bird population would be allowed to harvest male or female birds. If a licensed facility subsequently establishes a wild bird population, the facility would be allowed to continue harvesting both male and female game birds.

Mitigation Measure C-3b

- Pen-reared birds would be required to be released on the shooting preserve on a daily basis as required to meet customer demands and game bird farm requirements for harvesting 80% of released birds. Game birds could not be released in large numbers at the beginning of the season to sustain hunting throughout the season.

As was discussed in Chapter 3 of this PEIS, the shorter the time interval between release and hunting of pheasants, the greater the harvest of released birds. The highest take of hatchery pheasants comes when birds are released immediately prior to a hunt. Shooting preserve operators often release all or most of their pen-reared birds during September. This practice increases the potential for wild birds to be harvested on shooting preserves during later months of the shooting preserve season.

Mitigation Measure C-3c

- All pen-reared birds released on shooting preserves would be required to be distinguishable from wild birds. This would require that all pen-reared birds released on shooting preserves be banded, toe clipped, or have worn "peepers" prior to their release. Records of wild versus pen-reared bird harvests would be required.

Although this provision would not prevent wild birds from being harvested on shooting preserves, it would provide a means through which MFWP could monitor the number of wild birds taken on shooting preserves and identify problem areas. Pen-reared birds could be distinguishable from wild birds by either banding or toe-clipping the birds prior to their release. Or, if the birds were fitted with "peepers" (eye coverings), the birds could be identified because the peepers pierce the septum between the nostrils.

According to ARM 87.4.527, wild birds can be harvested on shooting preserves if the harvest is in accordance with applicable license, game, and hunting laws pertaining to open seasons,

bag and possession limits, and rules. In flight, wild game birds are indistinguishable from pen-reared birds. Therefore, an unknown number of wild birds are likely harvested each year on shooting preserves located in habitats that support wild bird populations. Any wild bird taken on a shooting preserve outside of the regular upland game bird hunting season is a violation of MFWP rules and regulations. Wild bird bag limits and ring-necked pheasant regulations may also be violated on shooting preserves because most shooting preserve operators allow hunters to harvest more birds than allowed under MFWP upland game bird bag limits and hen pheasants can often be taken on shooting preserves. By prohibiting the licensing of new shooting preserves in areas that support wild bird populations, the occurrence of these violations would be minimized.

Mitigation Measure C-4

- New ring-necked pheasant shooting preserves would be required to have an approved plan for releasing pheasants if the preserve is located within one mile of a known Columbian sharp-tailed grouse lek or wintering area.

The release of large numbers of pheasants near an existing Columbian sharp-tailed grouse lek could result in significant negative impacts on grouse populations from competition for food and disruption of breeding activity. Limiting the number of pheasants released per day or managing a put-and-take shooting preserve are alternatives for mitigating this potential impact.

Alternative D: Game Bird Regulatory Program Changes

This alternative would incorporate one of the alternatives above (A, B or C) with a variety of proposed changes in the regulatory management of the commercial game bird program and personal possession/release permits. These changes would address specific problems, inconsistencies or issues that have been identified by the public and within the agency.

D-1: Increase License Fees

Mitigation Measure D-1a

- License fees for game bird farms would be increased from the current \$25 for a new application and \$15 for annual renewals to \$100 for a new application and \$50 for annual renewals.

Game bird farm license fees are set by department rule making and were last considered in 1984. The increase would help to offset the increased cost of licensing and inspections.

Mitigation Measure D-1b

- All shooting preserves would pay an annual flat rate license fee of \$100 plus a surcharge of \$1.00 per acre. Funds raised as a result of the surcharge would be used by MFWP to offset program costs and to improve habitat and secure access for public hunting.

This type of fee schedule is used successfully in other states to provide funding for enhancement of upland game bird habitat and secure land for public hunting. An issue raised during the public scoping period was concern for the potential for shooting preserves to affect public hunting opportunities and affect wild game bird populations. Increased funding for department efforts at enhancing public hunting opportunities would offset some of this concern. This proposal would require a change in shooting preserve statutes, and the earliest it could be considered would be in 2001.

D-2: Establish a Minimum Number of Birds to be Released on Shooting Preserves

- All shooting preserves would be required to release a minimum of 300 birds of each species per season. All birds released must be at least 16 weeks old and fully feathered. This requirement would encourage those

persons wishing to enhance their personal and/or private pheasant hunting opportunities to obtain a personal permit to release game birds rather than obtain a shooting preserve license. This stipulation may also encourage establishment of shooting preserves as commercial enterprises rather than private-use operations.

D-3: Allow Private Release of Hungarian Partridge and Chukar Partridge

- The department would authorize the release of Hungarian partridge and chukar partridge on private land as is currently allowed for ring-necked pheasants. Birds could be released on private property between May 1 and August 31 with landowner approval. Birds would have to be disease tested or be acquired from an NPIP certified game bird farm.

D-4: Allow Private Release of Quail

- The department would authorize the release of quail on private land. Birds could only be released between April 1 and September 1 with landowner approval. Birds would have to be disease tested or acquired from an NPIP certified game bird farm.

D-5: Authorize Private Release of Game Birds Year Around

- The department would authorize private landowners to release approved species of game birds on their land on a year around basis, rather than limiting the releases to April 1 through September 1.

D-6: Define "Game Birds" and "Game Farm Birds"

- Game birds would be defined in the statutes to include all upland game birds and migratory game birds. Game farm birds would be defined in the Administrative Rules of Montana to include ring-necked pheasants, bobwhite quail, chukar partridge, Hungarian partridge and Merriams turkey. Statutory changes in definitions could not be accomplished until 2001.

CHAPTER 5

ENVIRONMENTAL CONSEQUENCES

Chapter 5 discusses potential direct and indirect impacts of the existing game bird farm and shooting preserve programs and identified alternatives to the current program. For each alternative, MFWP evaluated direct and indirect environmental effects on the environment.

CUMULATIVE IMPACTS

Cumulative impacts are impacts on the environment which result from incremental impacts of the action when added to other past, present, and reasonably foreseeable actions. Cumulative impacts have only been identified for socioeconomic resources and, therefore, are not discussed under the other resources.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS

An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time whereas an irreversible commitment of a resource is one that cannot be reversed. No irreversible or irretrievable commitments of resources were identified in implementing any of the program alternatives.

DIRECT AND INDIRECT IMPACTS

Water Resources

Alternative A - No Action

Under the current program, shooting preserves are not expected to directly or indirectly affect water resources in Montana. Historically, for game bird farm and shooting preserve projects where EAs have been prepared, the level of direct and indirect impacts to water resources from the proposed operations have been determined to be insignificant. Wastes generated by pen-reared game birds could potentially affect water resources because of waste management or intensive land management practices. However, based on observations documented while visiting several of the larger game bird farms in Montana, potential impacts to water resources are expected to be non-existent or minimal (MFWP 1998). Game bird farm operators typically control animal waste generated at their facility through collection of the waste and subsequent use of the waste as a nutrient source for crops cultivated on-site. Department of Environmental Quality enforces state water quality standards if an unanticipated problem arises.

Alternatives B, C and D

For reasons described under Alternative A, game bird farms and shooting preserves are not expected to significantly affect water resources under Alternatives B, C and D.

<u>WATER</u> Would the Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED
	UNKNOWN	NONE	MINOR	SIGNIFICANT	
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?					
b. Changes in drainage patterns or the rate and amount of surface runoff?					
c. Alteration of the course or magnitude of flood water or other flows?					
d. Changes in the amount of surface water in any water body or creation of a new water body?					
e. Exposure of people or property to water related hazards such as flooding?					
f. Changes in the quality of groundwater?					
g. Changes in the quantity of groundwater?					
h. Increase in risk of contamination of surface or groundwater?					
i. Violation of the Montana non-degradation statute?	Game bird farms	Shooting preserves			Yes, through waste management (impact is considered unlikely to occur).
j. Effects on any existing water right or reservation?					
k. Effects on other water users as a result of any alteration in surface or groundwater quality?					

Soil/Land Resources

Alternatives A, B, C and D

No significant direct or indirect effects on soil resources are expected as a result of any of the

Alternatives evaluated in this PEIS. Under the No Action Alternative, new game bird farms and shooting preserves would be subject to environmental review on a case-by-case basis. Minor impacts associated with game bird farms cannot be mitigated but are considered minimal based on the small size of the facilities.

LAND RESOURCES	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED
	UNKNOWN	NONE	MINOR	SIGNIFICANT	
Would the Proposed Action result in:					
a. Soil instability or changes in geologic substructure?					
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		Shooting preserves	Game bird farms		No, game bird farms are relatively compact and impacts are expected to be minimal.
c. Destruction, covering or modification of any unique geologic or physical features?					
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?					

Vegetation

Alternative A

Under the No Action Alternative, new game bird farms and shooting preserves would be subject to environmental review on a case-by-case basis. For game bird farm and shooting preserve projects where EAs have been prepared under the

current program, the level of direct and indirect impacts to vegetation resources from the proposed operations have been determined to be insignificant. In addition, significant impacts to vegetation resources were not apparent while visiting several shooting preserves and several of the larger game bird farms in Montana (MFWP 1998).

VEGETATION	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED
	UNKNOWN	NONE	MINOR	SIGNIFICANT	
Would the Proposed Action result in:					
a. Changes in the diversity, productivity or abundance of plant species?					
b. Alteration of a plant community?					
c. Adverse effects on any unique, rare, threatened, or endangered species?					
d. Reduction in acreage or productivity of any agricultural land?					
e. Establishment or spread of noxious weeds?			Game bird farms		Yes, through weed control programs.

Alternatives B, C and D

Construction of game bird farms results in the elimination of native vegetation (if present) within the pen and building areas. Game bird farms are often constructed near existing farm and ranch structures, are part of existing structures, or are on land that has been designated for commercial or residential use. In these situations, existing native vegetation is generally disturbed or is zoned for disturbance. Introduction and spread of noxious weeds by game birds are not concerns on game bird farms (Sullivan 1998). Birds are brought in as chicks and are fed a prepared, processed ration. Alfalfa hay is often provided as a supplement.

If not used year round, bird pens could potentially provide habitat for weedy exotic species. However, when pens are used each spring or summer, weeds are quickly eaten and/or trampled by the birds (Jackson 1998). Many shooting preserves are associated with game bird farms, so structures are usually used for both operations.

Disturbance of native vegetation or sensitive species on shooting preserves occurs primarily with construction of facilities and roads, or planting grain to enhance game bird habitat. Buildings, roads, and plantings on shooting preserves occupy a small portion of individual properties and are determined to have an insignificant impact on native vegetation population statewide.

Introduction of noxious weed seeds may occur from vehicles and dogs that are carrying weed seeds. Landowners are required to control noxious weeds on their property. Any infestation brought in by vehicles, dogs, or other extraneous sources should be controlled by the landowner.

Plant species listed under the Federal Threatened and Endangered Species Act of 1973 are not subject to federal protection if they are located on private property. Because shooting preserves and game bird farms are all located on private property, these plant species are not subject to protection under the Threatened and Endangered Species Act. However, it is recommended that permittees should contact the Montana Natural Heritage Program for information regarding presence of federally listed threatened and endangered species or Montana sensitive plant species within the

proposed game farm or shooting preserve. If species are known to exist in the vicinity, care should be taken to avoid those locations in siting of buildings and roads, or other disturbance associated with the game farm or shooting preserve.

Wildlife and Fisheries Resources

Game bird farms tend to be small and occupy small acreages, while shooting preserves are limited by law to 1,280 acres as a maximum size with a minimum distance of 10 miles between shooting preserves. Therefore, only 2 square miles out of about 78 square miles (3 percent) can be used for shooting preserves. This restriction limits the environmental impacts in a given area. Game bird farms and shooting preserves are not expected to directly or indirectly impact fisheries resources.

In some areas, shooting preserves may have been responsible for the establishment of wild populations of pheasants. Pheasant populations are known to expand into areas of suitable habitat, and will not survive long-term in areas lacking suitable habitat. Shooting preserves are not required to release birds into areas with suitable habitat, as is required for participants in the upland game bird enhancement program. Shooting preserves provide a benefit to landowners located in areas lacking viable game bird populations and habitat, but interested in providing opportunities for upland game bird hunting.

No impact to big game species would result from any of the Alternatives. Mammalian predators would continue to be controlled around game bird farms. Predatory species likely to occur near game bird farms (red fox, coyote, striped skunk, and raccoon) are not protected by state law and can be legally taken throughout the year. Localized predator control would affect individuals, but not populations.

Raptorial birds that may prey on game farm birds are protected by federal law. Minimal predator control would be expected at shooting preserves because most shooting preserves are "put and take" operations.

FISH/WILDLIFE	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED
	UNKNOWN	NONE	MINOR	SIGNIFICANT	
Would the Proposed Action result in:					
a. Deterioration of critical fish or wildlife habitat?					
b. Changes in the diversity or abundance of game species?		Game bird farms		Shooting preserves	Yes, through management practices.
c. Changes in the diversity or abundance of nongame species?		Game bird farms	Shooting preserves		Yes, through management practices.
d. Introduction of new species into an area?			Game bird farms - accidental releases	Shooting preserves	Yes, through management practices and limitations on species to be released
e. Creation of a barrier to the migration or movement of animals?					
f. Adverse effects on any unique, rare, threatened, or endangered species?					
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		Game bird farms		Shooting preserves	Yes, through management practices.
h. Increased risk of contact and disease between game bird farm animals and wild game birds?					Yes, through disease management practices.

Establishment of wild turkey populations has been a slow, ongoing process in Montana since 1954. The initial birds that were introduced were Merriam's wild turkeys from specific areas in Colorado and Wyoming. These birds are now naturalized to Montana's climate and habitats. Due to the potential for extreme cold and snow conditions during winter, Montana represents the distributional limit of wild turkeys. In addition to artificial selection problems associated with pen-reared turkeys, three other turkey sub-species are somewhat suited to Montana's climate, and could be inadvertently introduced to wild populations. It is difficult to distinguish between the various turkey species in young animals and bird farms have reported receipt of the wrong species. The repeated release of pen-reared turkeys could introduce genetic material to wild populations that result in wild birds less adapted to Montana's climate and habitats.

Alternative A

Under Alternative A, a site-specific environmental assessment would be completed for each application. Historically, birds released at shooting preserves were not required to be NPIP-certified, allowing for the potential introduction of disease into wild bird populations. Montana game bird farms are not required to be NPIP certified. There is a possibility that birds coming from NPIP-certified hatcheries may carry infectious diseases other than pullorum or typhoid (see Table 3-1); however, pullorum and typhoid are the most common diseases affecting gallinaceous birds, and therefore, risk to birds from diseases other than pullorum or typhoid is minimal.

Operators of shooting preserves located in areas supporting healthy wild game bird populations do not differentiate between pen-reared and wild

birds in their harvest records. Under Alternative A, the frequency of statutory violations on shooting preserves in the taking of wild birds outside the legal season as well as the unlawful harvest of female birds would likely increase as more shooting preserves are licensed in areas that support existing wild game bird populations. The planting of lure crops and habitat enhancement on preserves would likely attract wild pheasants and grouse to shooting preserves, augmenting the potential for statutory violations to occur and also reducing the availability of pheasants during the hunting season on adjacent lands open to public hunting.

In areas of quality pheasant habitat, the harvest of wild pheasants may exceed 20 percent (Thompson 1998). According to Montana statute, wild game birds can be harvested on shooting preserves as long as the harvest is in accordance with applicable license, game, and hunting laws pertaining to open seasons, bag and possession limits, and rules. Consequently, wild game birds taken on shooting preserves outside of the regular hunting season is a violation of Montana statute, as is the harvest of wild hen pheasants.

Alternative B

Other than the accidental release of game birds from a game bird farm, there are no significant impacts associated with the operation of a game bird farm. Under Alternative B, all game bird farms would be categorically excluded from MEPA review provided that all laws are followed and facilities are adequate to prevent escape of game birds under normal conditions. Facilities would have to be approved by MFWP prior to licensing. An environmental impact statement would be required for MFWP to approve a game bird farm believed to have inadequate facilities to prevent escape of game birds and located in an area that would have negative impacts on an existing wild game bird population.

Shooting preserves located in areas with no potential environmental impacts would be categorically excluded from MEPA review. A short checklist and site review would be conducted by MFWP to make this determination.

Proposals that do not meet the requirement for a categorical exclusion will have an environmental assessment or impact statement prepared by MFWP prior to the department issuing or denying a license. Under this alternative, all impacts

would be addressed and appropriately mitigated.

Alternative C

Under Alternative C, mitigation measure C-1 would require that birds released on shooting preserves must be blood tested or otherwise certified to be pullorum-typhoid free (i.e. from an NPIP-certified bird farm). This would reduce the risk of disease transmission to wild pheasants, grouse, and other birds.

Mitigation measure C-2 would prohibit the release of pen-reared turkeys on shooting preserves. This mitigation measure would eliminate the potential for introduced turkeys to affect the genetics of Montana's existing wild turkey population and would prevent inadvertent release of diseases into wild game bird populations. Wild turkey populations are established in 49 states in America. Of those 49 states, 45 have banned or restricted the private release of pen-reared turkeys.

Mitigation measure C-3 would prohibit licensing new shooting preserves in areas that support an existing wild game bird population unless a subset of mitigation measures are met. If adopted, this mitigation measure would essentially limit the number of wild birds harvested on shooting preserves to that harvested under current conditions. Some wild pheasants would still be taken out of season and wild hen pheasants could still be harvested on some shooting preserves, but because no new shooting preserves would be licensed in areas with existing bird populations, the impact to wild birds would remain unchanged from current conditions.

If a new shooting preserve applicant wishes to release pen-reared birds in an area supporting an existing wild bird population, then licensure of the shooting preserve would be conditional on compliance with mitigation measures C-3a through C-3c. Mitigation measure C-3a would prohibit shooting hen pheasants on any new shooting preserve located in an area supporting a wild ring-necked pheasant population. This would effectively limit the number of wild hen pheasants taken on shooting preserves to numbers similar to current conditions.

Mitigation measure C-3b would require shooting preserve operators to release birds on a daily

basis. This practice would promote the harvest of pen-reared birds and minimize the number of wild birds harvested on the shooting preserve.

Mitigation measure C-3c would require that all pen-reared birds released on shooting preserves be distinguishable from wild birds. This mitigation measure would provide MFWP the opportunity to monitor the harvest of wild pheasants (or other upland game birds) on shooting preserves. MFWP would be able to identify shooting preserves that consistently harvest more than 20 percent wild birds in their annual take, design management recommendations to reduce the take of wild birds, or provide better compensation for the take of wild birds since hatchery birds have poor survival and lower reproduction potential than wild birds.

Mitigation measure C-4 protects Columbian sharp-tailed grouse by limiting the potential for impacts on grouse leks and wintering areas. Large numbers of pheasants may be released in areas within one mile of a significant columbian sharp-tailed grouse lek or wintering area. Under such conditions, competition for food, cover, and breeding sites between grouse and pheasants may occur (Shackford in press).

Alternative D

Alternative D would result in the same impacts to wildlife resources as Alternative C. This alternative would provide additional consistency in Montana's game bird regulatory program that would benefit the public.

Recreation

Alternative A

Under the current program, the number of shooting preserves in Montana has grown from 6 in 1988 to 71 in 1999. Assuming the growth of these operations continues at a similar rate over the next 10 years, there would be more recreational opportunities on shooting preserves in the future. However, if a large percentage of wild birds are harvested on shooting preserves, recreational opportunities to hunt wild birds on public or private land adjacent to shooting preserves could decrease. The degree to which recreational opportunities would decrease would be dependent on the level of impact to wild bird populations and the accessibility of adjacent lands to hunters.

4. <u>AESTHETICS/RECREATION</u>	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED
	UNKNOWN	NONE	MINOR	SIGNIFICANT	
Would Proposed Action result in:					
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?					
b. Alteration of the aesthetic character of a community or neighborhood?					
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings?		Game bird farms		shooting preserves	Yes, through management practices

Alternative B and C

Under Alternative B, new shooting preserves would not be licensed in areas that support existing wild bird populations unless a subset of mitigation measures is met. This would likely increase recreational hunting opportunities in Montana because new hunting opportunities would be created in areas that did not previously support wild bird populations. If a new shooting preserve were located in an area that did support existing wild bird populations, then shooting preserve hunters could only harvest rooster pheasants and pen-reared birds would have to be released on a daily basis. Both of these mitigation measures would also tend to promote better recreational opportunities as impacts to adjacent wild bird populations would be minimized.

Alternative D

If the acreage surcharge mitigation measure were adopted, recreational opportunities in Montana could improve by using funds collected under the surcharge program to enhance upland game bird habitat and/or by acquiring land for public use. Under the existing program, the maximum amount paid for a shooting preserve license is \$190 per year for 1,280 acres (\$50 for the first 160 acres plus \$20 per 160 acres thereafter). Implementation of the surcharge would result in a maximum license

fee of \$612 per year (\$100 flat fee plus \$1.00 per acre up to 1,280 acres). A maximum license fee increase of \$422 is not expected to significantly discourage potential shooting preserve operators from pursuing a license.

Noise

Alternatives A, B, C and D

No significant direct or indirect effects on noise levels are expected under the alternatives evaluated. Shooting preserves are typically located in rural areas; not in close proximity to residential areas. Noise generated by a 12-gauge shotgun ranges from 68 to 81 dBA at a distance of 1,000 feet (see Table 3-3). These noise levels coincide with outdoor noise levels ranging from a lawnmower at 100 feet to an urban daytime setting.

Shooting preserves would not be approved in areas where hunting is not generally allowed or where public safety could not be ensured. Montana law prohibits shooting in the direction of or from any state or federal highway or county road, or right-of-away (61-8-639, MCA). Season restrictions could be placed on facilities located in sensitive areas where the surrounding landowners are concerned about public safety and noise impacts associated with a September through March shooting season.

<u>NOISE</u>	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED
	UNKNOWN	NONE	MINOR	SIGNIFICANT	
Would Proposed Action result in:					
a. Increases in existing noise levels?		Game bird farms	Shooting preserves		No
b. Exposure of people to severe or nuisance noise levels?		game bird farms	shooting preserves		Yes, through shooting restrictions

Access and Land Use

Alternatives A, B, C and D

Under all Alternatives, the number of shooting preserves in Montana is expected to grow at a rate similar, or higher, than that which has occurred over the past 10 years. Therefore, a small percentage of private land that would have been accessible to the general public for upland game bird hunting would be closed due to

increases in the number of shooting preserves. A number of individuals would likely lose access to their hunting grounds as a result of more shooting preserves licensed in the future. These individual cases would contribute to the perception that shooting preserves are affecting land access. However, current access to public hunting in Montana is available on approximately 56.7 million acres compared to an estimated 45,360 acres currently occupied by shooting preserves.

<u>LAND USE</u>	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED
	UNKNOWN	NONE	MINOR	SIGNIFICANT	
Would Proposed Action result in:					
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?					
b. Conflict with a designated natural area or area of unusual scientific or educational importance?					
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the Proposed Action?				some shooting preserves	No, the proposal would be denied
d. Conflict with any existing land use that would be adversely affected by the Proposed Action?					
e. Adverse effects on or relocation of residences?					

Socioeconomic Conditions

Alternatives A and B

No change to the current socioeconomic conditions would occur under the No Action Alternative; however, social impacts already have developed as a result of the EIS process and events which preceded the EIS process (e.g., proposed changes by MFWP in 1996). Factionalism of some segments of the population have occurred based upon support or opposition to the proposition of categorically excluding

shooting preserves and game bird farms from MEPA analysis. Under the No Action Alternative, individuals who oppose shooting preserves and upland game bird farms from being categorically exempt from MEPA analysis would experience a sense of relief and a perceived preservation of quality-of-life. Conversely, those who favor categorical exemption from MEPA analysis for shooting preserves and game bird farms would be disappointed in approval of the No Action Alternative.

SOCIOECONOMIC CONDITIONS	Potential Impact				Can Impact be Mitigated
	Unknown	None	Minor	Significant	
Would Proposed Action result in:					
a. A need for new or altered government services (specifically an increased regulatory role for MFWP and Dept. of Livestock)?			Licensing, inspections and imports will require government services		No
b. A change in the local or state tax base and revenues?			Taxes may increase		No
c. A need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?					
d. Alteration of the location, distribution, density, or growth rate of the human population of an area?					
e. Alteration of the social structure of a community?					
f. Alteration of the level or distribution of employment or community or personal income?					
g. Changes in industrial or commercial activity?					
h. Changes in historic or traditional recreational use of an area?			Shooting preserves		No
i. Changes in existing public benefits provided by affected wildlife populations and wildlife habitats (educational, cultural or historic)?			Shooting preserves		May increase wild bird populations.
j. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?					

Alternative C

Approval of categorical exclusion from MEPA review with specific mitigation measures, as described under Alternative C, would most likely be welcomed by some individuals or organizations opposing operation of shooting preserves in Montana. Although these persons may be opposed to categorical exclusion of shooting preserves from MEPA review, they would most likely favor the mitigation measures associated with Alternative C. Requiring that game birds released on shooting preserves be blood tested or

otherwise NPIP-certified would alleviate the fear that pen-reared birds may transmit diseases to wild birds. Also, concern expressed by individuals about wild game birds being harvested on shooting preserves would be somewhat reduced through the stipulation of Alternative C-3 since new shooting preserves could not be located in areas supporting an existing wild game bird population without mitigating potential impacts.

Existing owners/operators of shooting preserves may be split on their support or opposition to Alternative C. Some owners/operators may view mitigation measures associated with Alternative C as a deterrent to a significant increase in the number of people applying for shooting preserve licenses, thus the amount of future competition would be limited. Other owners/operators, however, may view categorical exclusion from MEPA review as streamlining the application process, resulting in the establishment of more shooting preserves throughout Montana.

Recreational opportunities would increase with a greater number of shooting preserves, but only for people seeking hunting in a private setting such as a shooting preserve and only for those who could afford to pay for the services offered by shooting preserves.

Alternative C would eliminate time spent by MFWP personnel in preparing EAs or EISs as required under MEPA, resulting in cost savings to MFWP. However, MFWP staff still would be required to prepare a checklist to ensure that the applicant is in compliance with existing rules and regulations of shooting preserves or game bird farms. Up-front inspections, monitoring, and responding to complaints about operation of shooting preserves and game bird farms would continue to be performed by regional game wardens under Alternative C.

Alternative D

Alternative D would result in social impacts similar to those described under Alternative C. Shooting preserve owners and operators also would be required to report to MFWP the number of resident and non-resident hunters using the shooting preserves. This mitigation measure would allow MFWP to more accurately determine the amount of revenue generated by resident and non-resident hunters using shooting preserves.

In addition, under Alternative D, shooting preserve owners could be required to pay higher annual license fees. These additional fees would be earmarked for enhancing wild game bird habitat and increasing the amount of public land available for hunting. Currently, the maximum amount paid for a shooting preserve license is \$190 for 1,280 acres (\$50 for the first 160 acres plus \$20 per 160 acres thereafter). If shooting preserve owners are required to pay a higher fee, the maximum amount paid would increase to \$1,380 (\$100 flat fee plus \$1.00 per acre up to 1,280 acres). Shooting preserve owners most likely would not be in favor of this mitigation measure, whereas individuals concerned about the loss of public hunting would be more apt to support it.

CUMULATIVE EFFECTS

Eliminating environmental analysis under MEPA would simplify the permitting process for MFWP staff and for applicants of game bird farms and shooting preserves. Streamlining the application process; however, may precipitate the establishment and expansion of more shooting preserves throughout Montana. The more shooting preserves operating within the state, the greater the potential to negatively affect public hunting opportunities and wild game bird populations. Because some shooting preserve operators plant lure crops at their operations, wild birds on nearby public and private land may be attracted to the lure crops risking fatality from shooters or diseased pen-reared birds. Loss of wild birds from public land could lead to decreased bird hunting in the area and potential loss of dollars into the local economy due to bird hunters shifting to other public land to hunt. Bird hunters who historically hunted upland game birds on these lands, but switched to other public land due to lack of wild bird populations, would experience a personal loss of public hunting opportunities.

<u>CUMULATIVE EFFECTS</u>	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED?
	UNKNOWN	NONE	MINOR	SIGNIFICANT	
a. Are there any impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total).					
b. Are there potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?					Yes, through management practices.
c. Are there potential conflicts with substantive requirements or any local, state, or federal law, regulation, standard or formal plan?					Yes, through management practices.
d. Would implementation of any of the alternatives establish a precedent or likelihood that future actions with significant environmental impacts be proposed?					
e. Would implementation of any of the alternatives generate substantial debate or controversy about the nature of impacts that would be created?					Yes, through management practices.

CHAPTER 6

MFWP PREFERRED ALTERNATIVE

MFWP has selected a combination of alternatives C and D as the preferred alternative to game bird farm and shooting preserve program management.

Under this combination of alternatives, game bird farms would be recommended for a categorical exclusion from MEPA review while shooting preserves would be evaluated for potential impacts, and would be excluded from MEPA review if all potential impacts were mitigated. A site evaluation would be based on information gathered and summarized in the form identified as Table 4-1.

Other changes for shooting preserves would include:

1. Require all game birds released in Montana to be blood tested for pullorum-typhoid or come from an NPIP-certified game bird farm.
2. No release of turkeys pending a change in statutes.
3. Denial of new shooting preserves in areas that support established wild game bird populations, unless the licensee agrees to harvest only rooster pheasants (Alternative C-3a), release game birds on a daily basis as needed to meet customer demand (Alternative C-3b), and distinguish pen-reared birds from wild birds for monitoring purposes (Alternative C-3c).
4. New shooting preserves located within one mile of a known Columbian sharp-tailed grouse lek or wintering area would be required to operate under an approved plan for releasing pheasants that would protect native grouse populations.

Additional program changes would include:

1. Propose rule changes to increase the license fee for game bird farms from \$25 with a \$15 renewal fee to \$100 with a \$50 renewal fee.
2. Request the legislature create a flat rate for shooting preserve licenses at \$100, and add a \$1 per acre surcharge. The funds raised from a surcharge would be used to offset program costs and to improve habitat and secure access for public hunting.
3. All shooting preserves would be required to release a minimum of 300 birds of each species per season. All birds released must be at least 16 weeks old and be fully feathered.
4. Game birds would be defined in the statutes to include all upland game birds and migratory game birds.
5. Game farm birds would be defined in the Administrative Rules of Montana to include ring-necked pheasants, bobwhite quail, chukar partridge, Hungarian partridge and Merriams turkey. Statutory changes in definitions could not be accomplished until 2001.

CHAPTER 7

COORDINATION AND PREPARATION

LIST OF PREPARERS

Lead Agency - Montana Department of Fish, Wildlife and Parks

Karen Zackheim - Project Manager/MFWP, Enforcement Division/MEPA Coordinator

Maxim Technologies, Inc.

Patrick Dunlawy – Project Manager/Water Resources/Recreation/Noise/Access and Land Use

Terry Grotbo – Assistant Project Manager/MEPA Compliance

FaunaWest Wildlife Consultants

Dr. Craig Knowles - Wildlife and Fisheries

Candace Durran

Soil/Vegetation

Northwest Resource Consultants

Linda Priest - Socioeconomic Resources

PUBLIC NOTICE AND AVAILABILITY

As part of the preparation of the Game Bird Farm and Shooting Preserve Programmatic EIS, MFWP solicited comments by letter on the project from all licensed game bird farm and shooting preserve operators, the Montana Wildlife Federation, and others who have expressed an interest in the subject over the past three years. Distribution of these notices on February 19, 1998 initiated a public scoping period that solicited comments through March 20, 1998. MFWP held an open house scoping session in Helena on March 3, 1998. Copies of the Draft PEIS can be obtained from the MFWP in Helena.

CHAPTER 8

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APPENDIX A

Game Bird Farm/Shooting Preserve/Application Forms

Please return completed form to your regional Fish, Wildlife and Parks office.

Fish, Wildlife & Parks
490 North Meridian
Kalispell, MT 59901

Fish, Wildlife & Parks
2300 Lake Elmo Drive
Billings, MT 59105

Fish, Wildlife & Parks
3201 Spurgin Road
Missoula, MT 59801

Fish, Wildlife & Parks
Route 1-4210
Glasgow, MT 59230

Fish, Wildlife & Parks
1400 South 19th
Bozeman, MT 59715

Fish, Wildlife & Parks
Rural Route 1, Box 2004
Miles City, MT 59301

Fish, Wildlife & Parks
4600 Giant Springs Road
Great Falls, MT 59405

Fish, Wildlife & Parks (R-8)
1420 East Sixth Avenue
Helena, MT 59620

Range

1	5	4	3	2	1	6
7	8	9	10	11	12	7
18	17	16	15	14	13	18
19	20	21	22	23	24	19
30	29	28	27	26	25	30
31	32	33	34	35	36	31
6	5	4	3	2	1	6

wp.

Remarks:

Fee: \$25 _____

Rev. 1-1-84

Form FG-110

STATE OF MONTANA

DEPARTMENT OF FISH, WILDLIFE, AND PARKS

APPLICATION FOR GAME BIRD FARM LICENSE

(Not Applicable to Quail)

Name of Applicant _____

Address _____
City State Zip

If nonresident, name of resident agent _____

(Address)

Exact legal description of land on which the game bird farm is to be located

Section Township Range County

Species of game birds _____

Name and address of the source of foundation stock _____

Type of fencing _____

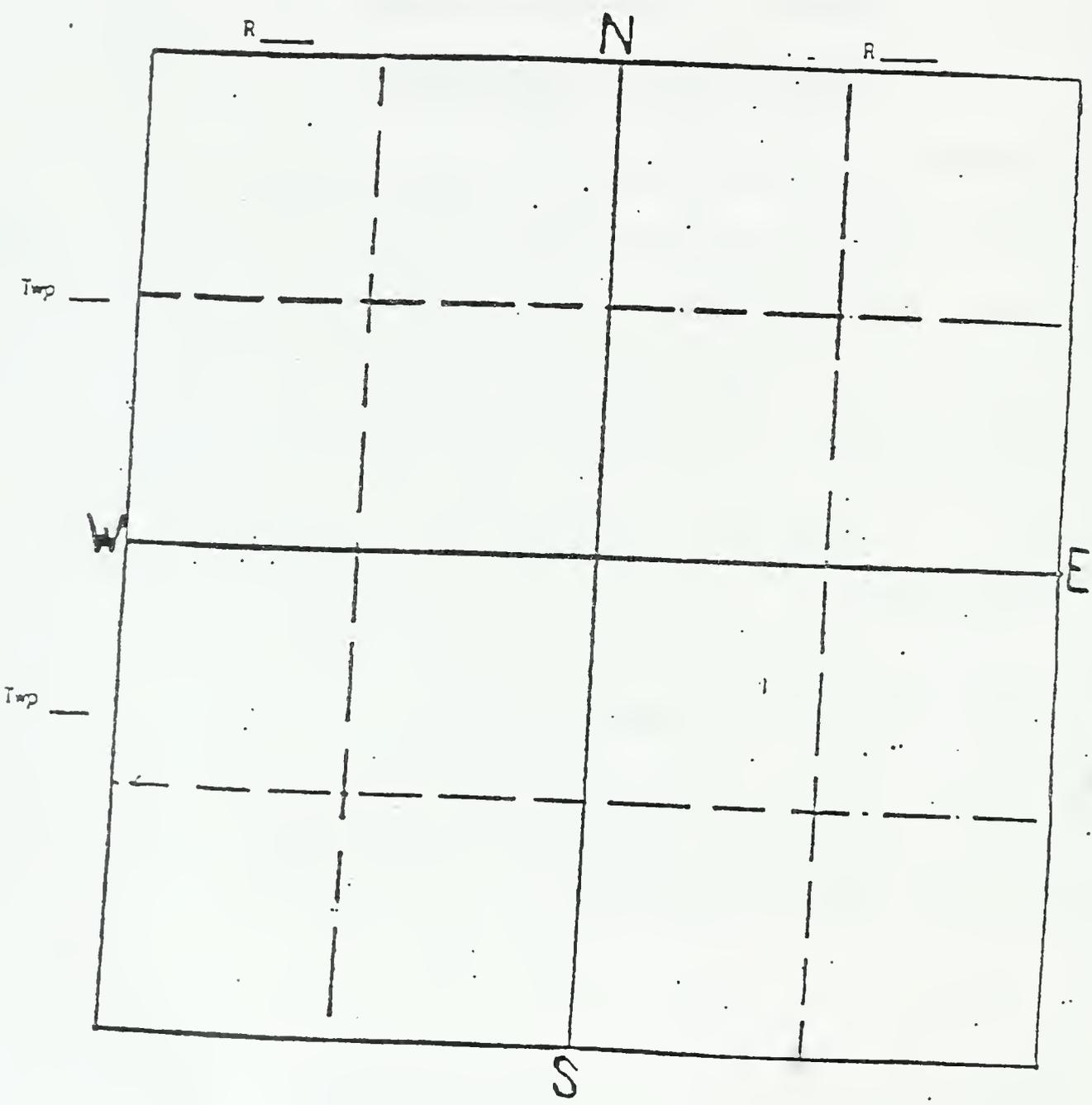
Do you plan to sell live or processed birds? _____

(Date)

Applicant Signature

Scale 1" = _____

Large square represents _____ section(s)



Draw in location of game farm to scale on lands owned or leased by applicant. Fill in legal subdivision, Section number, Township and Range.

Give exact acreage contained within pen.

MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

APPLICATION AND PERMIT TO:

- PART 1. POSSESS GAME BIRDS FOR NON-COMMERCIAL PURPOSES (or)
- PART 2. KILL GAME BIRDS FOR DOG TRAINING

NOTE: Applicants wishing to kill game birds for dog training must complete Parts 1 and 2. Applicants wishing only to possess birds need only to complete Part 1. All applicants must sign back of application.

PART 1. APPLICATION FOR PERMIT TO POSSESS LIVE GAME BIRDS FOR NON-COMMERCIAL PURPOSES

NAME _____ PHONE _____

ADDRESS _____

SPECIES _____

Legal description where birds will be kept:
(Section) _____ (Range) _____ (Township) _____

This application is for authorization to own, control, and propagate species of game birds as listed above for purposes other than sale or conveyance of game birds or parts thereof. Authority (87-4-902(1), MCA.

PART 2. APPLICATION TO KILL GAME BIRDS IN DOG TRAINING

Game Farm Species and Number Requested _____

Legal Description of Property Where Game Farm Birds Will be Used

Section _____ Township _____ Range _____

Landowner's Phone Number _____

Beginning and Last Dates for Which Permit is Requested _____

Beginning Date _____ Last Date _____

General Terms of Permits:

1. All birds killed must be game farm birds obtained from a lawful source and released at the time of training.
2. Permittee will carefully flush all wild game birds from the training area each day.
3. Game farm birds may only be killed by the permittee. This permit is not transferrable and is valid only for training dogs owned by the permittee except that permittee may kill game farm birds for a nonresident dog trainer only for a period of three days prior to or three days following a registered field trial in which the nonresident has dogs competing.
4. All game farm birds used for training must have a streamer of fluorescent surveyor tape conspicuously attached prior to release at the training site.
5. Permittee must keep an accurate record of dates, numbers and species of all game farm birds used.
6. All dog training areas must be more than one mile from any designated game preserve, bird nesting or management area.
7. No training utilizing game farm birds is authorized from April 15 to July 15.
8. Permittee must have a game bird possession permit or game bird farm bill of sale for all game farm birds except quail.

