Minnesota Department of Natural Resources

500 Lafayette Road
St. Paul, Minnesota 55155-4045

December 22, 1995

Ms. Maryanne V. Hruby,
Executive Director
Legislative Commission to
Review Administrative Rules
55 State Office Building
St. Paul, MN 55155

RE: Proposed Permanent Rules Relating to Ecologically Harmful Exotic Species

Dear Ms. Hruby:

The Minnesota Department of Natural Resources intends to adopt permanent rules relating to ecologically harmful exotic species. We plan to publish a Notice of Intent to Adopt Rules Without a Public Hearing in the December 26, 1995 issue of the State Register.

As required by Minnesota Statutes, sections 14.131 and 14.23, the Department has prepared a Statement of Need and Reasonableness, which is now available to the public. Also as required, a copy of this Statement is enclosed.

For your information, we are also enclosing a copy of the Notice of Intent to Adopt Rules and a copy of the proposed rules.

If you have any questions on these rules, please contact Jay Rendall (297-1464) or me (296-9564).

Sincerely,

Kathy A. Lewis

Kathy A. Lewis, Attorney
Mineral Leasing Manager

cc: J. Rendall

STATEMENT OF NEED AND REASONABLENESS

IN THE MATTER OF

PROPOSED PERMANENT RULES

RELATING TO ECOLOGICALLY HARMFUL EXOTIC SPECIES

Minnesota Rules, Parts 6216.0100 to 6216.0600

Minnesota Department of Natural Resources

December 20, 1995

STATE OF MINNESOTA
MINNESOTA DEPARTMENT OF NATURAL RESOURCES

In the Matter of the Proposed Adoption of Permanent Rules of the Department of Natural Resources Governing Ecologically Harmful Exotic Species; Minnesota Rules, Parts 6216.0100 to 6216.0600.

STATEMENT OF NEED AND REASONABLENESS

INTRODUCTION

The state is proposing rules pertaining to ecologically harmful exotic species because the species in this classification are current and potential threats to the states natural resources. The reason that these rules are needed is because increasing numbers of ecologically harmful exotic species are being introduced and dispersed in the state through a variety of sources and means, and current state laws are not comprehensive enough to address many of the pathways of spread. The risk from several, likely, pathways of spread will be eliminated through the adoption of these rules. By developing these rules and other regulations, it is hoped that the spread of ecologically harmful exotic species, such as Eurasian water milfoil, zebra mussels, and ruffe can be minimized to avoid their distribution throughout Minnesota. Ecosystems, native species, industry, tourism, and recreation will benefit from the adoption and enforcement of these rules.

The term "Ecologically harmful exotic species" represents a large set of species that would not naturally be found in Minnesota. They are defined in state statute to mean non-native aquatic plants or wild animals that can naturalize (establish reproducing populations in natural habitats of the state), have high propagation potential, are highly competitive for limiting factors, and cause or may cause displacement of, or otherwise threaten, native plants or native animals in their natural communities (Minn. Stat. sect. 84.967). A subset of ecologically harmful exotic species are "undesirable exotic species". They are defined in state statute as ecologically harmful exotic species that have been determined by the commissioner of natural resources to pose a substantial threat to native species in this state (Minn. Stat. Sec 18.316). This subset of ecologically harmful exotic species pose sufficient ecological threat to be regulated by the state as undesirable exotic species to prohibit their sale, possession, propagation, or transportation except under permit. Such prohibition, as described in state statute, will be established in subsequent rules promulgated by the Department.

The problems created by ecologically harmful exotic species are significant and have been increasing in Minnesota[1] , the nation[2] , and the world in recent years. There are many ecologically harmful exotic species present in the state. Of those already here, 39 have been identified as posing a severe future threat and 42 as posing a moderate future threat. Also, at least 27 species not yet present in Minnesota have been identified as potential threats. Recent introductions in Minnesota include: ruffe (1985), Eurasian water milfoil (1986), spiny water flea (1988), zebra mussels (1990), and the round goby (1995).

Human actions, both intentional and accidental, are the primary source of introductions and spread of ecologically harmful exotic species. Foreign plants and animals are infiltrating and changing the ecological balance of the state's natural areas and aquatic ecosystems in locations such as local, state, and federal parks, wildlife areas, and wildlife refuges. They pose increasing threats to the integrity of Minnesota's lakes, streams, and natural areas. They also pose threats to industrial, municipal, and other water systems, as well as water recreation and tourism.

The current federal framework is a patchwork of programs and regulations that is not adequate to protect the nation and the state from the introduction and spread of ecologically harmful exotic species. Without a comprehensive federal program, with no clear national policy, states are left to develop their own regulations and management plans.

The State of Minnesota has recognized the importance of addressing the issue. It has established a state program and passed several statutes to help minimize the introduction and spread of harmful exotic species. However, many of the specifics needed to adequately combat the pathways of spread of ecologically harmful exotic species, notification of infested waters, and other issues are not addressed by statutes. Thus rulemaking authority was given to the Department of Natural Resources

The first state laws regarding ecologically harmful exotic species were passed by the state legislature in 1987 and pertained to purple loosestrife[3]. In 1989, state legislation established an Interagency Exotic Species Task Force to review the issue of harmful exotic species, rank the existing and potential exotic species threats, and make recommendations to the state legislature.[4] That report was submitted in 1991 and was the basis for new legislation.[5] New statutes regarding Eurasian water milfoil were passed in 1990 including the prohibition on transporting Eurasian water milfoil.

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[1]Minnesota Interagency Exotic Species Task Force. 1991. Report and Recommendations of the Minnesota Interagency Exotic Species Task Force.
[2]U.S. Congress, Office of Technology Assessment. 1993. Harmful Nonindigenous Species in the United States.
[3]Minn. Stat., sect. 84.966.
[4]1989 Minn. Laws Ch 335, Art. 1, Sect. 268.
[5]Minnesota Interagency Task Force, 1991.

In 1991, the Minnesota Department of Natural Resources ("Department") was mandated to establish a statewide coordinating program to curb the spread of ecologically harmful exotic wild animal and aquatic plant species and to develop a management plan.[6] The Department was also given rulemaking authority to restrict the introduction, propagation, use, possession, and spread of ecologically harmful exotic species in the state.[7] The Department was also mandated to adopt rules to identify bodies of water with limited infestations of Eurasian water milfoil where such infestations are to be marked and where general public use of marked areas is prohibited.[8]

In 1992, state legislation made the transport of zebra mussels on a public road a misdemeanor.[9] Civil penalties were established in 1993 for transporting Eurasian water milfoil, zebra mussels, ruffe and other undesirable exotic species on public roads.[10]

In 1993, emergency rules regarding ecologically harmful exotic species were adopted and were later extended so they were effective for a total of 12 months. Those emergency rules were more extensive than these proposed rules. Additional rules will be proposed in the future to establish the restictions on undesirable exotic species per state staute, to list newly determined undesirable exotic species, and to establish a process for obtaining permits to possess undesirable species for certain purposes such as education, control, research, and disposal.

A notice to solicit public comment on these rules was published on November 1, 1993; October 31, 1994; and July 3, 1995. Additional parties were contacted to obtain input on drafting the rules, through correspondence and meetings with representatives from commercial fishing, aquaculture, and the bait industry.

Rule by Rule Synopsis

Part 6216.0100 **Purpose.**

This part cites the statutory authority for the proposed rules and restates that the statutory authority to adopt these rules is for the purpose of preventing the spread of ecologically harmful exotic species into and within the state. It is reasonable and necessary to restate the statutory objectives of the proposed rules to provide the reader with a general declaration of their purpose.

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[6]Minn. Stat. sect. 84.968 - .969.
[7]Minn. Stat. sect. 84.9691 (a).
[8]Minn. Stat. sect. 84.9691 (b).
[9]Minn. Stat. sect. 18.317.
[10]Minn. Stat. sect. 84.9692.

Part 6216.0200 **Definitions.**

Subpart 1. **Scope.** This subpart directs the reader to the definitions found in Minn. Stat. Secs. 17.457, 18.316, 18.317, 84.967 to 84.9692, and 97A.015 for terms used in the proposed rules. For the terms which are not defined in those statutes, this part provides definitions which may not be generally recognized or to which special or scientific meanings are attached. It is reasonable to refer to those terms already defined in statute to avoid repetition in the proposed rules. It is also reasonable and necessary to define terms used in the rules which are not used elsewhere so a specific meaning is understood. When a term used in the proposed rules does not appear in this part, it shall be assumed to have its common meaning.

Subpart 2. **Commissioner.** "Commissioner" is defined as the commissioner of natural resources of Minnesota or the commissioner's designated representative to clearly indicate which agency and staff are responsible for implementation of the proposed rules.

Subpart 3. **Department.** "Department" is defined as the Minnesota department of natural resources to clearly denote the agency directed to implement the proposed rules.

Subpart 4. **Infested waters.** "Infested waters" is defined as waters and water bodies which support populations of one or more select ecologically harmful exotic species. It is reasonable and necessary to include this definition as it clarifies the scope and applicability of the proposed rules.

Subpart 5. **Littoral area.** "Littoral area" is defined as portions of a water body that are 15 feet or less in depth. It is included within the definition section as it is a term of art not commonly used outside of the biological sciences. Its inclusion is necessary and reasonable for a full understanding of the scope and applicability of the proposed rules.

Part 6216.0250 **Undesirable Exotic Species.**

This part lists several undesirable exotic species that will be regulated by 6216.0500, Subp. 5. of these rules and three sections of Minnesota Statutes sections 18.317, 84.9692, and 86B.401. In the future, additional rules will be proposed to regulate the sale, propagation, possession, and transportation of these species, as well as, establishing a permit process allowing undesirable exotic species to be propagated, possesed, and transported for disposal, research, education, or control purposes, pursuant to Minnesota Statutes sect. 84.9691, Subd. 2.

The need and reasonableness for listing each species, including its known or potential impacts on native species, and other reasons why it has been listed, are included. The list of undesirable species is organized by taxonomic group and alphabetically by common name within the taxonomic groups. The summary pages for each undesirable exotic species are arranged in the same order the species are listed in the rule and the following list. Selected references, where available, are

provided to substantiate the characterization of each listed species.

Undesirable Exotic Species designated in this part of the proposed rule are:

Subpart. 1. **Aquatic Plants.**
(a) Eurasian watermilfoil (Myriophyllum spicatum);
(b) hydrilla (Hydrilla verticillata);
(c) European frog-bit (Hydrocharis morsus-ranae);
(d) flowering rush (Butomus umbellatus)
(e) any variety, hybrid, or cultivar of purple loosestrife (Lythrum salicaria, Lythrum virgatum, or combinations thereof);
(f) water chestnut (Trapa natans).

Subp. 2. **Birds.**
(a) mute swan (Cygnus olor).

Subp. 3. **Fish.**
(a) grass carp (Ctenopharyngodon idella);
(b) rudd (Scardinius erythrophthalmus);
(c) round goby (Neogobius melanostomus);
(d) ruffe (Gymnocephalus cernua);
(e) sea lamprey (Petromyzon marinus);
(f) white perch (Morone americana).

Subp. 4. **Invertebrates.**
(a) rusty crayfish (Orconectes rusticus);
(b) zebra mussel species (all species of the genus Dreissena).

Subp. 5. **Mammals.**
(a) Asian raccoon dog, also known as finnraccoon (Nyctereutes procyonoides);
(b) European rabbit (Oryctolagus cuniculus);
(c) any strain of nutria (Mycocastor coypu).

6216.0250 Subp. 1 (Aquatic plants). Item (a):

COMMON NAME: **Eurasian watermilfoil**

SCIENTIFIC NAME: ***Myriophyllum spicatum***

LEGAL STATUS HISTORY: The legislature assigned responsibility for managing milfoil to the DNR by enactment of Minn. Stat. 103G.617 in 1990. This law directs the DNR to monitor the distribution of milfoil in the state, inform the public about the need to control the plant, coordinate a control program for Eurasian watermilfoil, and begin cooperative research on biological control. Additional laws (Minn. Stat. Secs. 18.317, 84.9691 and 86B.401) were passed to limit the accidental transportation of milfoil, especially by boats and other watercraft. Minnesota Statute sect. 84.9691 requires the Department to adopt rules regarding limited infestations of Eurasian watermilfoil.

Minnesota Emergency Rule 6216.0100 listed Eurasian water milfoil as an undesirable exotic aquatic plant which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: Eurasian watermilfoil, or milfoil, is a submersed aquatic plant native to Europe and Asia. Milfoil is a perennial plant that spreads primarily by vegetative propagation. It spreads when the plant fragments into pieces, which can take root and grow into new plants. Milfoil plants break into fragments naturally or when boats and other watercraft go through milfoil beds. Water currents, boats, or boating equipment can carry fragments within and between waterbodies.

Since the introduction of Eurasian watermilfoil to North America during the 1940's, the plant has spread to nearly 40 states and three Canadian provinces. In Minnesota, milfoil was first discovered in 1987 in Lake Minnetonka. By 1990, 32 Minnesota lakes were known to contain milfoil and the number of lakes with known populations grew to 55 in 1992 and 74 in 1995. Milfoil could become established in many more Minnesota lakes. Approximately 10% of the major fishing and recreation lakes in the state are of the same type (DNR lake classification) as those with current milfoil populations.

Once introduced into lakes, rivers, or other waterbodies, milfoil may create problems by producing dense mats of vegetation that reach the water surface (Smith and Barko 1990). Swimming, pleasure boating, angling, sailing and water skiing are hampered by the milfoil mats. Mats of milfoil can displace many species of native plants by shading out the sun (Aiken, et al 1979, Madsen, et al 1991), thus reducing the biodiversity of aquatic ecosystems and perhaps harming fish and wildlife.

It is necessary and reasonable to designate Eurasian water milfoil an "undesirable exotic species" because its continued expansion in the state would pose a substantial threat to the state's native species. Eurasian water milfoil can grow and reproduce in Minnesota and many of the state's major fishing and recreation lakes are at risk. The plant forms dense mats of surface vegetation that adversly impact native species by limiting available light. It is therefore necessary and reasonable, and consistent with past legislation, to restrict the transport, possession, sale purchase, importation, and propagation of Eurasian water milfoil, except when permitted by the Department.

SELECTED REFERENCES:

Smith, C. S. and J. W. Barko. 1990. Ecology of Eurasian Watermilfoil. *Journal of Aquatic Plant Management* 28: 55-64.

Aiken, S. G., P. R. Newroth, and I. Wile. 1979. The biology of Canadian weeds. 34. *Myriophyllum spicatum* L. *Canadian Journal of Plant Science* 59:201-215.

Madsen, J. D., J. W. Sutherland, J. A. Bloomfield, L. W. Eichler, and C. W. Boylen. 1991. The decline of native vegetation under dense Eurasian watermilfoil canopies. *Journal of Aquatic Plant Management* 29:94-99.

6216.0250 Subp. 1 (Aquatic plants). Item (b):

COMMON NAME: **hydrilla**

SCIENTIFIC NAME: ***Hydrilla verticillata***

LEGAL STATUS HISTORY: Minnesota Emergency Rule 6216.0100 listed Hydrilla as an undesirable exotic aquatic plant which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR PROPOSED STATUS IN MINNESOTA: Virtually all of the aquatic plants that cause severe problems have one common trait, that of forming surface mats that interfere with and often prevent surface use of the water. The mats also shade out any native vegetation, leading to a mono-culture that decreases biodiversity and harms native species.

Hydrilla is probably the most problematic aquatic plant in the United States, especially the southern United States. This plant was first discovered in Florida in 1960 (Blackburn, *et al.* 1969), and was thought to be a new species of Elodea. In 1964 , the plant was correctly identified as hydrilla (Haller 1982).

Hydrilla plants can have male flowers, female flowers, or both. The hydrilla plants that were first found in Florida had only female flowers and therefore could not produce seeds. However, in 1980 hydrilla plants with female and male flowers were found in North Carolina and these plants can produce seeds (Langeland and Smith 1984).

As is the case with Eurasian watermilfoil, hydrilla seedlings are not very competitive but they are genetically different from the parent plants, raising the possibility that some would be winter-hardly in Minnesota. Dr. Joseph Balciunas, USDA (personal communication) says that he has commonly found hydrilla throughout Manchuria and Siberia indicating its potential to exist in Minnesota climates.

It is necessary and reasonable to designate hydrilla as an "undesirable exotic species" because, if introduced into the state, it is likely to naturalize and pose a substantial threat to native species. Mats of surface vegetation associated with hydrilla stands have created numerous problems, particularly in the southern United States. These charachteristics have been shown to adversly impact native aquatic plant species by limiting available light. It is therefore necessary and reasonable to restrict the transportation, sale, possession, and propagation of hydrilla. Human activity represents a primary means by which this species may spread, and reducing the likelyhood of spread may delay or eliminate potential adverse impacts to the state's native species.

SELECTED REFERENCES:

Haller, William T. 1982. Hydrilla goes to Washington. *Aquatics*, 4(4)6,-7.

Blackburn, R. D., L. W. Weldon, R. R. Yeo and T. M. Taylor. 1969. Identification and Distribution of Certain Similar-Appearing Submerged Aquatic Weeds in Florida. *Hyacinth Control Journal* 8(1)17-21.

Langeland, K. A. and C. B. Smith. 1984. Hydrilla produces viable seed in North Carolina Lakes - A mechanism for Long Distance Dispersal. *Aquatics*, 6(4)20-21.

6216.0250 Subp. 1 (Aquatic plants). Item (c):

COMMON NAME: **European frog-bit**

SCIENTIFIC NAME: ***Hydrocharis morsus-ranae***

LEGAL STATUS HISTORY: none

BASIS FOR PROPOSED STATUS IN MINNESOTA: European frog-bit is a floating-leaved aquatic plant that is present in much of Europe and parts of Asia. It commonly establishes and becomes dominant in a large number and wide range of North American wetland types (White *et al.* 1993). European frog-bit's floating leaves can form sparse to dense, free floating, mats on the surface of the water (Lumsden and McLachlin 1988, Catling *et al.* 1988). Because the dense floating mats of frog-bit, available light, dissolved gasses, and nutrients were rlimited for submerged aquatic plants attempting to grow beneath the mat. These mats can cause native aquatic plant species to decline substantially, particularly in sheltered waters (Catling *et al.* 1988).

European frog-bit is not yet known to exist in Minnesota. This species was imported from Switzerland to a Canadian Experimental Farm in 1932. By 1958, it spread through connecting waterways an became well established in the St. Lawrence River near Montreal. In 1976, it was discovered in a bay of Lake Ontario and the north shore of Lake Erie (Mills 1991). Its continued spread to western Lake Ontario marshes in the 1980s is noted by Lumsden and McLachlin (1988).

Pleasure boat traffic has been suggested as a means of gradual spread of the plant because dense mats readily tangle on the shaft of outboard motors. The turions of frog-bit can float on the surface of the water and be dispersed with wind or current (Lumsden and McLachlin 1988).

It is necessary and reasonable to designate European frog-bit as an "undesirable exotic species" because: based on its spread in similar latitudes it is likely to naturalize in the state; it poses a substantial threat to the state's native aquatic plant species; and it is potentially transported by watercraft. It is therefore necessary and reasonable to restrict the transportation, sale, purchase, and propagation of European frog-bit, except when permitted by the Department, in order to limit its introduction and spread in the state.

SELECTED REFERENCES:

Catling, P. M., K. W. Spicer, and L. P. Lefkovitch. 1988. Effects of the introduced floating vascular aquatic, Hydrocharis Morsus-ranae (Hydrochariaceae), on some North American aquatic macrophytes. *Naturalist can.* 115:131-137.

Lumsden, H. G. and McLachlin, D. J. 1988. European Frog-bit, *Hydrocharis morsus-ranae*, in lake Ontario Marshes. *Can. Field-Nat.* 102(2): 261-263.

Mills, E. L., J. H. Leach, J. T. Carlton, and C. L. Secor. 1993. Exotic species in the Great Lakes: a history of biotic crises and anthropogenic introductions. *Journal of Great Lakes Research* 19(1):1-54.

White, David, Haber, E. and Keddy, K. 1993. *Invasive Plants of Natural Habitats in Canada.* Habitat Conservation Branch, Canadian Wildlife Service, Environment Canada. Ottawa, Ontario.

6216.0250 Subp. 1 (Aquatic plants). Item (d):

COMMON NAME: **flowering rush**

SCIENTIFIC NAME: ***Butomus umbellatus***

LEGAL STATUS HISTORY: Minnesota Emergency Rule 6216.0100 listed flowering rush as an undesirable exotic aquatic plant which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: Flowering rush is an Eurasian aquatic plant that is not native to Minnesota. It is promoted and sold as an ornamental garden or pond plant and is currently available for sale in Minnesota and other states.

In Minnesota, flowering rush has been identified in the Cannon River, Rice County, three lakes in Anoka County, four lakes and the Pelican River in Becker County, and in one lake in Itasca County. In Becker and Itasca County, flowering rush has established populations that have overwintered, reproduced, and increased in size. In some areas of these lakes, flowering rush forms dense stands within native plant communities or in areas where native plants are absent. The Department is evaluating the potential effects of flowering rush on native aquatic plant species and methods to control its spread (Minnesota Department of Natural Resources 1994).

The most likely means of long-distant spread of flowering rush is through human transport (Staniforth and Frego 1980) such as intentional planting. Minn. Stat. sect. 103G.615 gives the commissioner authority to issue permits to transplant aquatic plants into public waters. Under Minn. Stat. sect. 103G.615, the commissioner's authority does not extend to private gardens or non-public waters where flowering rush may be planted, escape from cultivation, and be introduced into public waters. By designating flowering rush an "undesirable exotic species" the Department can prohibit future sale of this exotic in the state and in turn may prevent the spread of flowering rush to new water bodies.

It is necessary and reasonable to designate flowering rush as an "undesirable exotic species" because it is known to naturalize in the state; it can displace native aquatic plant species; and it is potentially transported by watercraft and as an ornamental. Although this plant has value as an ornamental garden or pond plant, it can not be contained in those settings and can escape and become naturalized in new locations. In order to limit its spread in the state, it is therefore necessary and reasonable to restrict transportation, sale, purchase, and propagation of flowering rush, except when permitted by the Department, .

SELECTED REFERENCES:

Minnesota Department of Natural Resources. 1994 . Management Plan for the Exotic Species: Flowering Rush (*Butomus umbellatus*). Minnesota Department of Natural Resources, Section of Ecological Services, Exotic Species Program. 500 Lafayette Road, St. Paul, MN 55155. unpublished report. Nov. 1994. 25 pp.

Staniforth R. J. and K. A. Frego. 1980. Flowering rush (*Butomus umbellatus*) in the Canadian prairies. *Canadian Field Naturalist* Vol. 94:333-336.

6216.0250 Subp. 1 (Aquatic plants), item (E):

COMMON NAME: **Any variety, hybrid, or cultivar of purple loosestrife**

SCIENTIFIC NAME: ***Lythrum salicaria, L. virgatum* or any combination thereof**

LEGAL STATUS HISTORY: State legislation in 1987 (Minn. Stat. sect. 86.78) established a program within the Department of Natural Resources to control the spread of purple loosestrife in Minnesota. In 1988, purple loosestrife was designated a noxious weed by the Commissioner of Agriculture and was subject to the provisions of the state noxious weed laws (Minnesota Statutes sect. 18.171, subdivision 5). In 1992, the statutes were revised to limit the Department's obligation to control purple loosestrife in public waters (Minn. Stat. 18.78, subd. 2.).

Minnesota Emergency Rule 6216.0100 listed purple loosestrife as an undesirable exotic aquatic plant which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR UNDESIRABLE STATUS: Purple loosestrife is an aquatic plant that is native to Europe and Asia. Since its introduction into Minnesota in the early 1900s, loosestrife has become established in thousands of acres of wetlands, lakeshores, streams and ditches where it has replaced native plant species (Mal *et al.* 1992, Skinner *et al.* 1994, Thompson *et al.* 1987). This loss of native plant species reduces food, shelter and nesting sites for wildlife, especially waterfowl. Since inventory efforts were started by the Department in 1987, purple loosestrife has been identified in 68 of Minnesota's 87 counties, encompassing approximately 38,000 acres of wetlands, lakeshores, streambanks and pasture lands.

It is necessary and reasonable to designate purple loosestrife as an "undesirable exotic species" because it has proven to be very invasive in moist soil areas of the state and its continued spread would pose a substantial threat to native species. Its designation as a state noxious weed demonstrates that these adverse impacts far outweigh the plant's use as an ornamental flower. It is therefore necessary and reasonable to restict the transport, sale, possession, and propagation of purple loosestrife to compliment its status as a state noxoious weed, except when permitted by the Department.

SELECTED REFERENCES:

Mal, T. K., J. Lovett-Doust, L. Lovett-Doust, and G. A. Mulligan. 1992. The biology of Canadian weeds. 100. *Lythrum salicaria.* Canadian Journal of Plant Science 72:1305-1330.

Skinner, L. C., W. J. Rendall and E. L. Fuge. 1994. *Minnesota's Purple Loosestrife Program: History, findings, and management recommendations.* Minnesota Department of Natural Resources Special Publication 145, 1994.

Thompson, D. Q., R. L. Stuckey and E. B. Thompson. 1987. *Spread, Impact and Control of Purple Loosestrife in North American Wetlands.* USFW, Fish and Wildlife Research 2, 1-55 p.

COMMON NAME: **water chestnut**

SCIENTIFIC NAME: ***Trapa natans***

LEGAL STATUS HISTORY: Minnesota Rule 6216.0100 listed water chestnut as an undesirable exotic aquatic plant which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This was an emergency rule and expired August 11, 1994. Importation and/or cultivation of all species of Trapa is prohibited by federal laws (Tarver 1986).

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: Water chestnut is an emersed or floating annual that occurs in lakes, ponds, canals, and sluggish river tributaries. It decays during the onset of winter leaving numerous large armed seeds that sprout the following spring. The stems may be as long as 5 meters, but are usually between 1 and 2 meters. Reproduction occurs both by seed and fragmentation. The fruit is an edible nut with four sharp spines. The tubers of Eleocharis dulcis, also called water chestnut, are used in various Chinese dishes and should not be confused with *Trapa natans* (Tarver 1986).

Trapa natans was first introduced into the United States from Asia in the late 1800s for its ornamental appearance or possibly for waterfowl food. Its release into the Great Lakes is probably due to escape from aquaria or escape from private ponds (Mills *et al.* 1993). It is presently found in New York (Mohawk and Hudson Rivers), Virginia (Potomac River), Maryland (Chesapeake Bay), Massachusetts (Sudbury River), Lake Ontario (Sodus Bay) and Vermont (Lake Champlain). Its range is expanding from the Atlantic states. It can be spread by fragments of the plant that attach to boats and associated equipment (Vermont Dept. of Water Resources).

Water chestnut is a nuisance aquatic plant that limits boating and fishing in some areas it infests (Vermont Dept. of Water Resources, Mills *et al.* 1993). It forms impenetrable mats during the summer and fall which hinder navigation and prevent fishing. Water chestnut out-competes other submersed vegetation, especially desirable waterfowl plants thus endangering the feeding and wintering grounds for many ducks. Bathing beaches are also affected because the thorny nuts of water chestnut inflict painful wounds when stepped upon. Other than occasional consumption by muskrats, the nuts are not utilized by wildlife, and as stated above, infestation are detrimental to waterfowl feeding grounds (Tarver 1986).

It is necessary and reasonable to list water chestnut as an "undesirable exotic species" to prohibit its introduction into the state either intentionally through ornamental use, or incidentally, by transport on watercraft.

SELECTED REFERENCES:

Mills, E. L., J. H. Leach, J. T. Carlton, and C. L. Secor. 1993. Exotic species in the Great Lakes: a history of biotic crises and anthropogenic introductions. *Journal of Great Lakes Research* 19(1):1-54.

Tarver, David P., et al. 1986. *Aquatic and Wetland Plants of Florida.* Bureau of Aquatic Plant Research and Control, Florida Department of natural Resources.

Vermont Department of Water Resources and Environmental Engineering. *Water Chestnut A Problem Aquatic Plant You Should Know in Lake Champlain.* Undated brochure.

6216.0250 Subp. 2 (Birds), Item (a):

COMMON NAME: **mute swan**

SCIENTIFIC NAME: ***Cygnus olor***

LEGAL STATUS HISTORY: Minnesota Emergency Rule 6216.0100 listed mute swan as an undesirable exotic species which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR PROPOSED MINNESOTA STATUS: Mute swans are native to Europe and Asia and were first introduced into the United States in the late 1800's. In Wisconsin, Michigan, and some more eastern states, their naturalized populations have expanded rapidly causing concern for native species and their habitat (Allin, Chasko, and Husband 1987). Conover and McIvor (1993) did not find significant impacts from mute swans at low population densities. However, it is difficult to maintain low population levels once mute swans are established. Mute swans are capable of high reproductive rates (Knapton 1993, Wisconsin DNR pers. comm., Johnson 1993) and the public can become protective of the species at localized sites. Mute swans can be extremely aggressive during the spring and summer breeding season, excluding other wildlife from their breeding territories (Allin, Chasko, and Husband 1987). There is evidence that mute swans have displaced loons on traditional loon nesting sites in Michigan (Johnson, pers. comm. 1991).

Mute swans have escaped or been released from avicultural and park settings occasionally in Minnesota. There have been possible wild nesting pairs in some locations, such as the Cannon River in Rice County, from these escaped birds. These sightings are primarily in east-central and southeastern Minnesota. Sightings usually number less than ten individuals per year. Mute swans dispersing from a wild breeding population in northwestern Wisconsin may be a source for some of the occurrences (MN DNR 1995). There have been attempts to use mute swans to keep geese populations in localized areas in check. However, this does not work, because the aggression is centered around the breeding season and subsides prior to the molt migration of geese, thus allowing goose numbers to increase.

It is desirable to prevent the establishment of a naturalized population of mute swans (Temple 1992). It is necessary to designate the mute swan an "undesirable exotic species" to prohibit release, sale, and other activities that may allow the mute swan to establish naturalized populations in the state. It is reasonable for the Department to regulate possession, transfer, and breeding of mute swans through permits allowed for undesirable exotic species.

SELECTED REFERENCES:

Allin, C. C., Chasko, G. G., and T. P. Husband. 1987. Mute swans in the Atlantic flyway: a review of the history, population growth, and management needs. *Trans. NE Sect. Wildl. Soc.* 44: 32-47.

Johnson, J. 1993. Kellogg Bird Sanctuary. Michigan State University.

Knapton, R. W. 1993. Population status and reproductive biology of the mute swan, *Cygnus olor*, at Long Point, Lake Erie, Ontario. The Canadian Field-Naturalist 107:354-356.

MN DNR. 1995. Survey records and notes.

Smith, T. 1993. Deceptive elegance. Wisconsin Natural Resources 17(3)4-9.

Temple, S. 1992. Exotic birds: a growing problem with no easy solution. The Auk 109(2):395- 397.

WI DNR. 1994. Surveys records and notes.

6216.0250 Subp. 3 (Fish). Item (a):

COMMON NAME: **grass carp**

SCIENTIFIC NAME: ***Ctenopharyngodon idella***

LEGAL STATUS HISTORY: Minnesota Emergency Rule 6216.0100 listed grass carp as an undesirable exotic wild animal which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

Grass carp which are a member of the minnow family (Cyprinidae) are subject to Minnesota Statutes 97C.515 and 97C.341 which restricts the importation of minnows into the state and their use for bait. However, this statute does not regulate sales, transport, or propagation of this species for other purposes. Regulations governing commercial fishing operations on the Wisconsin-Minnesota boundary waters (Minnesota Rules 6266.0600) specify that any grass carp taken while commercially fishing may not be returned to the water.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: The grass carp is native to China and Russia. This species has been introduced into more than 50 countries throughout the world for aquatic weed control and aquaculture (Sutton and Vandiver 1986). It was imported to the United States in 1963 for experimental purposes and first released in Florida in 1970 as a biological control measure for hydrilla. Since 1970 the distribution of grass carp and the sterile triploid grass carp has expanded greatly. Many states use or permit the use of grass carp or their genetic derivatives for nuisance aquatic vegetation control.

Grass carp are primarily herbivorous, capable of eating up to three times their body weight per day (Sutton and Vandiver 1986). It is feared that the grass carp may destroy important fish and wildlife habitat by eliminating all aquatic vegetation in waters where maintaining native vegetation is desirable (Becker 1983). This is of particular concern in the upper Midwest where native aquatic plant communities are important for the propagation and well being of economically important fish, wildlife, and plant species in the region's lakes and wetlands. It is indisputable that grass carp now reside in the Mississippi and Missouri rivers (Shroud 1974) and have been documented up to Pool 4 in the Mississippi River (Gates pers. comm. 1989).

Minnesota Statutes prohibit the importation of minnows, including carp and grass carp into the state. In 1988 an illegal stocking of grass carp was documented in a golf course pond in the southern metro region (Dave Zappetillo pers. comm.). This population was subsequently eradicated with a fish toxicant.

It is necessary and reasonable that grass carp be designated an "undesirable exotic species" because of their potential to negatively impact economically and ecologically important native aquatic plant communities. The distribution of this species continues to move northward in the Mississippi River watershed heightening concern that once present in Minnesota waters, they will flourish.

SELECTED REFERENCES:

Becker, G. C. 1983. *Fishes of Wisconsin.* The University of Wisconsin Press, Madison, Wisconsin.

Gates, Larry. 1989. Response to a survey on harmful exotic species in Minnesota.

Shroud, R. H. 1976. Status of grass carp. *Sport Fishing Inst. Bull.* 273(Apr 1976):4-6.

Sutton, D. L. and V. V. Vandiver, Jr. 1986. *Grass carp: A fish for biological management of hydrilla and other aquatic weeds in Florida.* Florida Agricultural Experiment Station, Bulletin No. 867.

6216.0250 Subp. 3 (Fish). Item (b):

COMMON NAME: **rudd**

SCIENTIFIC NAME: ***Scardinius erythropthalmus***

LEGAL STATUS HISTORY: Minnesota Emergency Rule 6216.0100 listed rudd as an undesirable exotic wild animal which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

Rudd, a member of the minnow family (Cyprinidae), are subject to Minnesota Statutes sect. 97C.515, which limits the importation of minnows into the state. However, this statute does not regulate the sales, tranport, or propagation of this species.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: Rudd are adaptable to a range of environmental conditions including low water quality and their establishment of populations in New York and Maine suggest that they would survive in Minnesota. Rudd inhabit still surface waters in shallow weedy areas around the shorelines of lakes, river back waters, and canals (MacNeil 1993).

Rudd consume large amounts of aquatic vegetation around the shoreline, promoting the release of nutrients into the water, either indirectly, from rudd waste or directly from broken plant fragments. Depletion of aquatic vegetation may potentially reduce the reproductive successes of native fish species that utilize near shore areas for spawning sites or nursery habitats for their young. Examples of fish species that utilize vegetation for spawning are northern pike, muskellunge, and yellow perch (MacNeil 1993). In addition, young rudd may compete with young-of the-year and juvenile fish species for food resources, and may compete for habitat with juvenile fish (MacNeil 1993).

Rudd hybridize with other minnow species in Europe and recent studies from the U.S. Fish and Wildlife Service indicate that some rudd hybridization occurs with native golden shiners. Although rudd-shiner hybrids were found to be sterile, long-term reproductive successes of golden shiners and other native species could be reduced because the unique genetics of native species could be lost (MacNeil 1993).

It is necessary and reasonable to classify rudd as an "undesirable exotics species" because it has the potential to: survive in the waters of Minnesota; consume large amounts of aquatic vegetation which reduces fish habitat; hybridize with other minnow species; and be mis-identified as golden shiners and goldfish. It is necessary to list this species as undesirable to prevent the possession, sales, propagation, or transport of this species in Minnesota.

SELECTED REFERENCES:

MacNeil, David. 1993. *Biology and Potential Impacts of the Rudd in the Great Lakes.* Sea Grant, Cornell Cooperative Extension, State University of New York. 4 pp.

6216.0250 Subp. 3 (Fish). Item (c):

COMMON NAME: **round goby**

SCIENTIFIC NAME: ***Neogobius melanstomus***

LEGAL STATUS HISTORY: Minnesota Emergency Rule 6216.0100 listed round goby as an undesirable exotic wild animal which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR "UNDESIRABLE EXOTIC SPECIES" STATUS: The first reported finding of round goby occurring in the Great Lakes was in the St. Clair River in 1990 (Jude et. al. 1992). This fish, originally from the Black and Caspian Seas, was introduced through transoceanic ballast water discharge. It has spread to the Detroit River, the Lake Erie basin, Lake Michigan basin, and now to Lake Superior. Two specimens of the round goby have been found in the Duluth-Superior harbor since July, 1995.

The round goby prefers "coarse gravel, shelly, and sandy inshore areas, but migrate to deeper water in winter"(Miller 1986). They feed on bivalves, amphipod crustaceans, polychaetes, chironomids, small fish and fish eggs (Jude, Reider, Smith 1992). The round goby can grow to larger sizes (215-250mm) than native sculpins (Cottus spp.), darters (Etheostoma spp.), and the logperch, which occupy the same habitat type. This size differential, plus the round goby's ability to spawn over a prolonged period and as a repeat spawner (up to six times) every 18-20 days (Jude, Reider, Smith 1992) give this species a competitive edge over native fishes. The round goby have caused a decline in the mottled sculpin populations in the St. Clair River by competition for optimal habitat, possible predation effects, interference with spawning, and interspecific competition for food (Jude, Jannsen, Crawford, 1995).

It is necessary and reasonable to designate round goby as an "undesirable exotic species" because of its ability survive in the state and known ability to out compete native sculpin, darter, and logperch populations. Human activity has transported round goby from Europe to the U. S. and could contribute to the movement of round gobies to inland waters of the state. It is reasonable and necessary to restrict the transportation of round gobies to prevent their spread to inland waters.

SELECTED REFERENCES:

Jude, D.J., Janssen J., Crawford G. R., 1995. *Ecology, Distribution, & Impact of the Newly Introduced Round & Tubenose Gobies on the Biota of the St. Clair & Detroit Rivers.*

Jude, D. J., R. H. Reider, and G. R. Smith. 1992. Establishment of Gobiidae in the Great Lakes basin. *Can. J. Fish. Aquat. Sci.* 49: 416-421.

Miller, P. J., 1986. Gobiidae. *In* P.J.P. Whitehead, M-L. Bauchot, J.-C. Hureau, J. Nielsen, E. Toronese (eds.), *Fishes of the North-east Atlantic and the Mediterranean,* Vol. III: 1019-1095. UNESCO, Paris.

6216.0250 Subp. 3 (Fish). Item (d):

COMMON NAME: **ruffe**

SCIENTIFIC NAME: ***Gymnocephalus cernuus***

LEGAL STATUS HISTORY: Minnesota Emergency Rule 6216.0100 listed ruffe as an undesirable exotic wild animal which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

The transport of ruffe on public roads is also prohibited by Minnesota Statute sect. 84.9692.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: The ruffe is a small but aggressive fish species native to Eurasia. The ruffe was introduced into the Lake Superior drainage in the mid-1980's presumably the result of ballast water transfers from a large ocean-going vessel (McLean 1993). The ruffe has established a thriving population in the St. Louis River estuary (Selgeby and Ogle 1991, 1992) and now inhabit several other river mouths eastward to the Ontonagon River in Michigan and in Thunder Bay, Ontario (National Biological Service 1995). Ruffe were discovered in Lake Huron in 1995.

Because the ruffe matures quickly, has a high reproductive capacity, and adapts to a wide variety of environments, it is considered a serious threat to commercial and sport fishing (McLean 1993). Ecological concerns include direct competition for food with native species such as yellow perch, and predation on the eggs and young of economically important commercial and sport fish species (Ogle 1994). Since the mid-1980's the ruffe population in the St. Louis River has expanded to the point where they are the most abundant species taken in assessment trawling. Management efforts directed at increasing the predator biomass to exert biological control on the ruffe have proven largely unsuccessful.

It is necessary and reasonable to designate ruffe as an "undesirable exotic species" because its rapid population increase and spread, in the St. Louis River and adjacent Lake Superior, is and example of the threat this species possess to native fish populations in inland waters.

SELECTED REFERENCES:

McLean, M. 1993. Ruffe: *A new threat to our fisheries.* Minnesota Sea Grant Program, publication No. X-7, University of Minnesota-Duluth.

National Biological Service. 1995. Confirmed Ruffe Sightings (*Gymnocephalus cernuus*). An unpublished map available from National Biological Survey, Gainsville, FL.

Ogle, D. H. 1994. *Ruffe (Gymnocephalus cernuus): A review of the literature.* Wisconsin Department of Natural Resources, Bureau of Fisheries Management, Madison, Wisconsin.

Selgeby, J. H., and D. H. Ogle. 1991. *Trophic relations of ruffe and the status of ongoing research in the St. Louis River Estuary, Lake Superior, 1990.* Great Lakes Fishery Commission, Lake Superior Committee. 15pp.

Selgeby, J. H., and D. H. Ogle. 1992. *Trophic relations of ruffe and the status of ongoing research in the St. Louis River Estuary, Lake Superior, 1991.* Great Lakes Fishery Commission, Lake Superior Committee. 10pp.

COMMON NAME: **sea lamprey**

SCIENTIFIC NAME: ***Petromyzon marinus***

LEGAL STATUS HISTORY: Minnesota Emergency Rule 6216.0100 listed sea lamprey as an undesirable exotic wild animal which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: The sea lamprey is found throughout the entire Great Lakes basin and associated tributaries. The sea lamprey, native to the Atlantic Ocean and Lake Ontario, gained access to the Great Lakes upstream of Niagra Falls, through the Welland canal in the 1930's.

Adult lampreys, which are parasitic, reach lengths of 12-24 inches. They feed on a variety of fish species including: lake trout, lake and round whitefish, chubs, ciscoes, burbot, herring, walleye, yellow perch, suckers, and carp. Unlike the adults, the larval ammocoetes filter feed in the bottom sediment, on diatoms and desmids (Becker 1983).

The destructive potential of this species was documented by the decline of the commercial lake trout catches in both Lake Michigan and Lake Superior. In Lake Michigan the catch of lake trout by commercial fisherman declined from 1,124,140 kg. in 1940, to 25 kg. in 1954 (Becker 1983). Lake Superior lake trout production dropped from 2.1 million kg. in 1949 to 168,300 kg. in 1961- a 92% decline (Becker 1983). In the 1980s, it was estimated that the sea lamprey accounted for 60-80 % of the mortality of lake trout ages VII -IX and of spawning size (Becker 1983).

A concerted effort is being expended by the Great Lakes states, the Province of Ontario, and the federal governments of the United States and Canada to control this fish in the Great Lakes. Lamprey control methods include: mechanical and electrical barriers, used to capture and destroy adults; chemical control with TFM, targeting the ammocoete stage; and male sterilization, a new method, which prevents egg fertilization (Schleen 1992).

Because of the destructive potential of the sea lamprey, it is reasonable and necessary to be designated as an "undesirable exotic species". Restriction of the transport, sale, purchase, propagation of this species will help prevent the spread of sea lamprey to inland waters of the state.

SELECTED REFERENCES:

Becker, G. C., 1983. *Fishes of Wisconsin.* The University of Wisconsin Press, Madison, Wisconsin. pp. 211-215.

Parker, P. S. and R. E. Lennon. 1956. *Biology of the sea lamprey in its parasitic phase.* U.S. Fish Wildl. Serv. Res. Rep. 44. iii + 32pp.

Schleen, L. P., 1992. *Sea Lamprey Management in Lake Superior in 1992.* A report to the Lake Superior Committee. Sea Lamprey Control Centre, Sault Ste. Marie, Ontario.

6216.0250 Subp. 3 (Fish). Item (f):

COMMON NAME: **white perch**

SCIENTIFIC NAME: ***Morone americana***

LEGAL STATUS HISTORY: Minnesota Emergency Rule 6216.0100 listed white perch as an undesirable exotic wild animal which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: The white perch is a member of the temperate bass family which includes white bass which are fairly common in the Upper Mississippi River drainage. The original range of the white perch was along the Atlantic coast from Georgia north to Nova Scotia where it occurred in salt and brackish water and in the lower portion of coastal rivers. It is believed to have accessed the Great Lakes through the Erie and Welland canals in the same manner as the alewife and the sea lamprey (Kernan 1986).

White perch were first collected from Lake Erie in 1953 and in Lake Huron in 1983. From 1980 to 1984 white perch increased rapidly; from a catch of two young-of-the-year fish to being the second most abundant fish in Lake Erie (based on annual assessments of young-of-the-year fishes). In addition to being highly prolific they are opportunistic feeders (Scott and Crossman 1973) which raises concern over the potential competition for food with native species such as yellow perch. Food habits studies have also confirmed that they will prey on the eggs of important sport fish species such as walleye (Kernan 1986).

White perch were first collected from the St. Louis River in 1983. Since 1986 they have been collected routinely from the St. Louis River estuary, however, their abundance is considered "rare" (John Lindgren pers. comm.). White perch have not yet been collected from Minnesota waters of Lake Superior during routine monitoring efforts. One individual was identified from the stomach contents of a lake trout collected just outside the Duluth harbor. It is likely that they would have high potential to establish populations in inland waters.

It is necessary and reasonable to designate the white perch an "undesirable exotics species" to minimize the potential for this species to be transported and spread to inland waters, and to minimize its threat to the stability of economically significant native fish communities.

SELECTED REFERENCES:

Kernan, L. T. 1986. The status of white perch. *Wisconsin Sportsman*, April 1986.

Lindgren, John. 1995. Minnesota Department of Natural Resources.

Scott, W. B. and E. J. Crossman 1973. *Freshwater Fishes of Canada.* Bulletin No. 184, Fisheries Research Board of Canada, Ottawa.

216.0250 Subp. 4. (Invertebrates). Item (a):

COMMON NAME: **rusty crayfish**

SCIENTIFIC NAME: ***Orconectes rusticus***

LEGAL STATUS HISTORY: Minnesota Rule 6216.0010 listed rusty crayfish as an undesirable aquatic exotic species which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 1994.

Minnesota Rule 6260 prohibits the transport of any crayfish from one waterbody to another.the rule prohibits the use of live crayfish for bait, except in the water body where they are collected.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: Rusty crayfish is a species native to the area of North America that includes Michigan, Ohio, Indiana and southern states. The rusty crayfish has been brought into and has established naturalized populations in Minnesota. A 1990 report lists 16 waterbodies, in 12 Minnesota counties, in which rusty crayfish were collected, scattered from the northeast to the southwest of the state (Helgen 1990). It is likely in more waters, but has not been reported.

Rusty crayfish displace native species of crayfish (Page 1985). Rusty crayfish can also reduce aquatic vegetation (Olsen *et al.* 1989), and harm fish spawning, through destruction of beds or consumption of eggs.

The most likely means of spread of rusty crayfish is through human movement, most likely through use for bait. Another potential means of spread is through aquaculture of crayfish for commercial sale. Finally, biological supply companies may sell this organism to colleges and schools for biology classes. Intentional release of crayfish by teachers or students would aid in their dispersal throughout the state.

It is necessary and reasonable to designate rusty crayfish an "undesirable exotic species" to limit transportation, sale, and other human activities which contribute to the spread of this crayfish into new waterbodies in the state.

SELECTED REFERENCES:

Helgen, J. C. 1990. *The Distribution of Crayfishes in Minnesota.* Section of Fisheries Investigational Report No. 405. Division Of Fish and Wildlife, Minnesota Department of Natural Resources.

Page, L. M. 1985. The Crayfish and Shrimps (Decapoda) of Illinois. Volume 33, Article 4. *Illinois Natural History Survey Bulletin.*

Olsen, M. T., D.M. Lodge, G. M. Capelli, and R. Houlihan. 1989. Impact of the Introduced Crayfish, *Orconectes rusticus,* in Northern Wisconsin Lakes. Abstracts form the 1989 North American Benthological Society Annual Meeting.

6216.0250 Subp. 4. (Invertebrates). Item (b):

COMMON NAME: **zebra mussel, quagga mussel**

SCIENTIFIC NAME: ***Dreissena spp. (including D. polymorpha and D. bugensis)***

LEGAL STATUS HISTORY: Minnesota Emergency Rule 6216.0100 listed zebra mussels as an undesirable species which made it illegal to transport, possess, sell, purchase, import, take or propagate the species without a permit issued by the Department. The emergency rule expired August 1994.

Minnesota Statute sect. 18.317 prohibits the transport of zebra mussels on a road or highway, or the launching of a watercraft into waters of the state if the watercraft has zebra mussels attached.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: Dreissenids are Eurasian aquatic mussels that are not native to North America or Minnesota. There are presently two species of the genus Dreissena in North America. They share common traits and similar life histories. All species under this genus should be listed as undesirable.

In Minnesota, zebra mussels are found throughout the Mississippi River from Lock and Dam 1 downstream to the Iowa border. Current research has documented reproducing populations within the river. They have also been reported from the Duluth Harbor and in shipping docks in Two Harbors in Lake Superior.

Unlike native mussel species, zebra mussels attach themselves to any hard surface in waterbodies where they are found which has adverse commercial, recreational, and ecological impacts. Zebra mussels have been documented to kill native mussels (Marsden, et al. 1991), and may alter plankton communities through their selective feeding. They may also impact fisheries by competing for the phytoplankton and other microscopic food organisms. There are no environmentally acceptable means of control for zebra mussels once they are present in a waterbody.

Both adult zebra mussels and their microscopic larval stages are transported between waterbodies by human activity. Adults spread (either upstream and overland) by attaching to watercraft while larval stages are moved in water (either overland or within a water system). Zebra mussel adults are capable of withstanding prolonged exposure to air and thus can be transported long distances. It is necessary and reasonable to designate the zebra mussel as an "undesirable exotic species" to prevent its introduction into inland waters of the state.

SELECTED REFERENCES:

Marsden, J. E., R. E. Sparks, and K. D. Blodgett. 1991. *Overview of the zebra mussel invasion: Biology, impacts and projected spread.* Manuscript presented at the Governors Conference on the Management of the Illinois River System.

6216.0250 Subp. 5 (Mammals). Item (a):

COMMON NAMES: **raccoon dog, Finnraccoon**

SCIENTIFIC NAME: ***Nyctereutes procyonoides***

LEGAL STATUS HISTORY: The importation, transportation, and acquisition of raccoon dogs is prohibited by federal law (50 CFR Part 16, 16.11). In Minnesota, the transportation, possession, sale, gift, importation, and release of raccoon dogs was first prohibited by Commissioner's order 2142, effective May 3, 1983. Thse prohibitions were continued in Commissioner's Order 2450. The Commissioner's order was replaced by listing as an undesirable exotic wild animal in Minnesota Emergency Rule 6216.0100 which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: Raccoon dogs are small (15 lbs.) members of the canid family, native to eastern Siberia, Manchuria, Japan, parts of China, and northern Indo-China. The head resembles the raccoon, while the body is dog-like. Raccoon dogs inhabit various habitats in temperate areas, and are omnivorous in their feeding habits. Similar to other canids, they produce one litter of 5-12 young per year.

Raccoon dogs have become established in the wild in parts of eastern Europe and the Soviet Union, in habitats and climates comparable to those in Minnesota. Introduced to locations where they are exotic species, raccoon dogs have competed with foxes, badgers, and mink, reducing populations of these species. Additionally, raccoon dog predation has reduced muskrats, and especially ground nesting birds, in the USSR.

It is necessary, reasonable, and consistent with past and existing regulations, to designate the raccon dog as an "undesirable exotic species". It is necessary to regulate raccon dogs to prevent the establishment of a wild populations of raccoon dogs in Minnesota, which would likely be detrimental to native species. It is reasonable because no known commercial captive populations exist in Minnesota; consequently, this designation would not adversely impact any Minnesota industries.

SELECTED REFERENCES:

Federal Register / Vol. 47, No. 242 / Thursday, December 16, 1982 / Rules and Regulations.

Minnesota State Register, Monday 22 June 1992, 16 S.R. 2797.

Walker, Ernest P. 1968. *Mammals of the World.* John Hopkins University Press, Baltimore.

6216.0250 Subp. 5 (Mammals). Item (b):

COMMON NAME: **European rabbit**

SCIENTIFIC NAME: ***Oryctolagus cuniculus***

LEGAL STATUS HISTORY: The importation, transportation, and acquisition of European rabbits is prohibited by federal law (50 CFR Part 16, 16.11). In Minnesota, the transportation, possession, sale, gift importation, and release of European rabbits was first prohibited by Commissioner's Order 1516, dated October 22, 1958, Thses prohibitions were continued in Commissioner's Order 2450, effective July 1, 1992.

Minnesota Emergency Rule 6216.0100 listed European rabbit as an undesirable exotic wild animal which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: European rabbits are similar in size and appearance to cottontail rabbits. They are native to southwestern Europe and northwestern Africa, but have been widely introduced around the world. Introduced populations occur in North and South America, Great Britain, the Ukraine, and most notoriously, in New Zealand and Australia, where they are significant economic pests and have displaced native wildlife. Unlike native Minnesota rabbits, they dig their own burrows and are very gregarious, forming colonies of burrows called warrens.

European rabbits have the potential to: develop naturalized populations in Minnesota; displace native rabbit populations; and cause substantial environmental and economic damage.

It is necessary and reasonable to designate European rabbits an "undesirable exotic species" to prevent the establishment of a wild population of European rabbits in Minnesota, which would likely be detrimental to native species. It is reasonable, because no known commercial captive populations exist in Minnesota; consequently, this designation would not adversely impact any Minnesota industries.

SELECTED REFERENCES:

Federal Register / Vol. 47, No. 242 / Thursday, December 16, 1982 / Rules and Regulations

Minnesota State Register, Monday 22 June 1992, 16 S.R. 2797

Walker, Ernest P. 1968. *Mammals of the World.* John Hopkins University Press, Baltimore.

COMMON NAMES: **nutria, coypu**

SCIENTIFIC NAME: ***Myocastor coypu***

LEGAL STATUS HISTORY: In Minnesota, the transportation, possession, sale, gift importation, and release of nutria was first prohibited by Commissioner's Order 1516, dated October 22, 1958. These prohibitions were continued in Commissioner's Order 2450.

Minnesota Emergency Rule 6216.0100 listed nutria as an undesirable exotic wild animal which made it illegal to transport, possess, sell, purchase, import, take, or propagate the species without a permit issued by the Department. This emergency rule expired August 11, 1994.

BASIS FOR UNDESIRABLE EXOTIC SPECIES STATUS: Nutria are rodents, similar in ecology and appearance to muskrats, although about 2-3 times larger. They are native to Argentina, but were widely introduced into North America in the 1930's, becoming fully established in the wild in 9 states, and present in several others. Nutria inhabit wetlands, but will feed on adjacent croplands.

Nutria have been reported in Minnesota and adjacent states, but have not established large populations. In other states, they have become serious agricultural pests, and have caused severe vegetation degradation in wetlands.

It is necessary, reasonable, and consistent with past regulations, to designate the nutria as an "undesirable exotic species". It is necessary to prevent the establishment of wild populations of nutria in Minnesota, which could be detrimental to native species, wetlands, and agricultural crops. It is reasonable, because no known commercial captive populations exist in Minnesota; consequently, this designation would not adversely impact any Minnesota industries.

SELECTED REFERENCES:

Chapman, J. A. and Feldhamer, G. A. 1982. *Wild Mammals of North America: Biology, Management, Economics.* John Hopkins University Press, Baltimore and London.

Minnesota State Register, Monday 22 June 1992, 16 S.R. 2797

Walker, Ernest P. 1968. *Mammals of the World.* John Hopkins Press, Baltimore.

Part 6216.0300 **Identification, Notice, And Marking of Infested Waters and Limited Infestations of Eurasian Water Milfoil.**

Subpart 1. **Identification of infested waters and notice.** This subpart requires the Commissioner to identify infested waters and to provide public notice of such identification through the posting of signs and the publishing of the names of such waterbodies in the State Register as well as other methods where practical. It is necessary to require notice to comply with the statutory references to waters that areeither identified, or not identified, by the commissioner as infested. It is reasonable to require public notice in the manner described to assure that the public will be aware of such infestations. Because the laws pertaining to infested waters prohibit or require specific activities (e.g. removing Eurasian water milfoil or zebra mussels from watercraft before transporting on public roads; draining water from watercraft and equipment) and because violating those laws is a misdemeanor, it is necessary to inform the public which waters are infested.

The subpart also allows the Commissioner to amend the published list at any time. It is necessary for the commissioner to be able to amend the list so that newly discovered infested waters may quickly be brought under regulation, before further infestation/spread occurs. It is reasonable to authorize the Commissioner to periodically update the published list so the public is aware of new infested waterbodies as they are discovered, or waterbodies where the exotic species has been eliminated.

Subpart 2. **Identification of limited infestations of Eurasian water milfoil and notice.** Minn. Stat. Secs. 84.967, subd. 3 defines "limited infestation of Eurasian water milfoil" for purposes of this rule (see appendix). Minn. Stat. Secs. 84.9691(b) directs the Commissioner to adopt rules to identify bodies of water with limited infestation of Eurasian water milfoil. The statute also requires that these infestations be marked where control is planned and their use by boaters and anglers be prohibited. This subpart implements this statutory directive by requiring the Commissioner to identify and designate waterbodies with limited infestations of Eurasian water milfoil and to provide public notice of such designation through the posting of signs and the publishing of the names of such waterbodies in the State Register as well as other methods where practical. It is necessary to require notice to comply with the statutory directive to identify to the public those waters so designated. It is reasonable to require public notice in the manner described in order to assure that the public will avoid use of specified areas within waters with limited amounts of Eurasian water milfoil and, through such avoidance, reduce the chance of the unintentional spread of Eurasian water milfoil through the transport of plant to other waterbodies or increasing the fragmentation (Eurasian water milfoil does autofragment and produces many stem fragments during the summer[11]) of the species within any given waterbody. Notice by posting at the accesses to the water

[11]Aiken, S. G., P. R. Newroth, and I. Wile. 1979. The biology of Canadian weeds. 34. *Myriophyllum spicatum* L. *Canadian Journal of Plant Science* 59:201-215.

body and by publication in the State register provides an efficient and uniform means of informing the public of the designation of these waters.

The subpart also allows the Commissioner to amend the published list at any time. It is necessary for the commissioner to be able to amend the list so that newly discovered infested waters may quickly be brought under regulation, before further infestation/spread occurs. It is reasonable to authorize the Commissioner to periodically update the published list so the public is aware of new infested waterbodies as they are discovered, or waterbodies where the species has been eliminated.

Subpart 3. **Delineation and markers for limited infestation of Eurasian water milfoil.** This subpart directs the Commissioner to mark limited infestations of Eurasian water milfoil pursuant to the procedure found in Minnesota Rules, part 6110.1500, subp. 7. (see appendix). It is necessary to require such marking to comply with the statutory directive of Minn. Stat. sect. 84.9691(b) which requires that the Department to mark the areas of limited infestations where control is planned, and prohibit their use. It is reasonable to require that areas of the limited infestation where control work is planned be delineated and marked for public notification and that such marking be done pursuant to a system presently existing in rule to assure consistency.

It is also reasonable to require that the Commissioner remove such markings once the control work is completed or the infestation has been eliminated. Such action will allow the public use of the water once the chance of unintentional spread has been reduced.

It is reasonable to require marking at or near the shoreline on the ends of infestation areas adjacent to shore to assure that the public is able to determine the extent of the infestation from the shoreline or on the waterbody for purposes of avoiding the infested area. The rule sets a maximum interval for markers to be placed to ensure boaters will be able to detect the boundary of marked infestation areas. When the maximum interval of 300 feet, or the lenght of a football field, is usedon long infestations, the buoys should be sufficiently close to clearly depict the boundary of the marked area. Placing markers no further than 300 feet apart is a reasonable distance so as not to make the marking procedure overly burdensome, while at the same time keeping markers sufficiently close so boaters can see the delineation of the restricted infestation areas.

Part 6216.0400 **Restricted activities on infested waters and waters with limited infestations of Eurasian water milfoil.**

Subpart 1. **Prohibition of taking bait from infested waters.** This subpart prohibits the taking of wild animals from infested waters for bait purposes. Typically, the taking of bait is done in an indiscriminate manner and can result in the capture of many species other than the target species and the transfer of water

containing zebra mussels, spiny water fleas, or other ecologically harmful exotic species in life stages that are not visible to the naked eye. Although the captured minnows can be searched for ecologically harmful exotic species, it is an inefficient and ineffective means of detecting those species and the lay person may not be trained to identify all ecologically harmful exotic species. Additionally, in bait harvesting and transport, the transfer of water containing microscopic life stages of ecologically harmful exotic species is a large concern which cannot be addressed through inspection for ecologically harmful exotic exotic species. Minnow traps, seines, hoop nets, or other gear used to capture, transfer, or transport bait species can transfer ecologically harmful exotic species if not totally dried and there are no acceptable methods to treat water used to transfer bait fish. As bait is commonly used in waters other than those where the bait was taken, it is reasonable and necessary to have a blanket prohibition on taking wild animals from infested waters for bait purposes.

Subpart 2. **Prohibition of sport gill netting for whitefish and ciscoe in infested waters.** This subpart gives the Commissioner the authority to close infested waters for sport gill netting of whitefish and ciscoe. Studies have shown that the transfer of ecologically harmful exotic species of aquatic plants and, in some cases, wild animals can occur when objects placed in infested waters and/or the infested water itself are transferred to non-infested waters.[12,13] It is reasonable and necessary for the Commissioner to have the authority to close the gill netting season in designated waters to prevent infestation of other waterbodies.

The Commissioner may allow gill netting in infested waters, but may require that the gill nets not be used in other waterbodies. It is reasonable to provide the alternative to a total ban on gill netting if the spread of the species can be adequately managed by confining use of the gill nets to the specific waterbody. Alternatives such as drying the nets, as allowed in these rules for commercial fishing, is not an option for the sport gill netting of whitefish and ciscoe because the season length is very short, where as the commercial season is longer and drying can be an option within the season.

This subpart requires the commissioner to provide notice of the requirements in the subpart through posting at public access points, publication in the state register, and other means where practical. It is reasonable and necessary to provide public notice of locations where these regulations apply.

Subpart 3. **Commercial fishing restrictions in infested waters.** This subpart requires that nets, traps, buoys, anchors, stakes and lines used for commercial

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[12]Carlton, J.T. 1993. Dispersal Mechanisms of the zebra mussel (Dreissena polymorpha). *In* Zebra Mussels: biology , impacts, and control. *Edited by* T.F. Nalepa and D. W. Schlosser. Lewis Publishers, Inc. Boca Raton, FL pp. 677-697.

[13]Ricciardi, Anthony, Robert Serrouya, and Frederick G. Whoriskey. 1994. Aerial exposure tolerance of zebra and quagga mussels (Bivalvia: Dreissenidae): implications for overland dispersal. *Canadian. Journal Fisheries and Aquatic Science.* 52:470-477.

fishing purposes in infested waters be subject to specified treatment to assure that specific ecologically harmful exotic species which may adhere to or be trapped by the fishing equipment is removed or destroyed prior to reset in non-infested waters. Studies show that in most circumstances ecologically harmful exotic species can be killed and otherwise made harmless by drying the equipment for a minimum of ten days or freezing for a minimum of two days before reuse.[14,15] It is reasonable and necessary to require these activities to prevent the spread of an ecologically harmful exotic species to non-infested waters through the use of commercial equipment.

This subpart also requires that commercial fishing operators notify the Department prior to removing commercial nets from infested waters and before resetting those nets in non-infested waters. This requirement provides the Department a reasonable opportunity to inspect nets and/or verify that required treatments have been performed to assure ecologically harmful exotic species are not being carried to non-infested waters by way of the equipment. This is reasonable because it is a minimal burden to the commercial operator to assure that the Department has the opportunity to determine compliance with its rule requirement.

Subpart 4. **Prohibition on entry into areas marked for limited infestation of Eurasian water milfoil.** This subpart limits public intrusion into marked areas of waterbodies which have limited infestations of Eurasian water milfoil except where water access to riparian property can only be gained through the infestation. This subpart also authorizes entry into the infestations by government personnel or their agents for official duties. It also allows access through such areas by the public in emergency situations.

It is reasonable and necessary to limit access into and through such infestations so control efforts are not interferred with or disrupted; to minimize the chance of the species' spread within the lake by watercraft or angling; or by transportation of the species into other non-infested areas of the same lake or other lakes on the watercraft or their associated equipment. Reducing the risk of transportation by watercraft and angling is necessary because most interlake transport of aquatic plants is attributed to fragments attached to watercraft.[16]

It is reasonable and necessary to allow passage through designated infestations using the shortest and most direct route to provide water access to real property otherwise non-accessible by water. To prohibit such passage would unreasonably limit the riparian property owner's ability to use the waterbody in a manner consistent with the owner's riparian rights.

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[14]McMahon, Robert F., Ussery, T.A., and , Clarke, M. 1993. "Use of Emersion as a Zebra Mussel Control Method", Contract Report EL-93-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
[15]Biesboer, David D. Ph.D. 1994. Viability of Eurasian Watermilfoil Seeds: Progress Report. Department of Plant Biology, University of Minnesota. St. Paul, Minnesota.
[16] Howard-Williams, Clive. 1993. Processes of Aquatic Weed Invasions: the New Zealand Example. *Journal of Aquatic Plant Management* 31:17-23.

It is reasonable and necessary to allow government officials and their contractors or permittees to enter the areas to conduct survey, control, and monitoring work on the Eurasian water milfoil population because these areas are established by statute for these purposes.

Lastly, it is reasonable to allow access into infested areas in emergency situations where property or human life is endangered. Such intrusions would occur infrequently and, in such cases, watercraft and other equipment used can be searched for the plant species after the operation is completed.

Part 6216.0500 **Transportation and appropriation of water from infested waters.**

Subpart 1. **Transporting water and live fish from infested waters.** This subpart prohibits the use of water from infested waters to transport fish at all times. Additionally, the transport of live fish taken from infested waters, but not including the infested water, to other waters or holding facilities from May 1 through October 31st requires a transportation permit issued by the Department. A permit is not required to transport fish from infested waters during other times of the year.

It is necessary and reasonable to prohibit the transfer of infested water along with live fish for the same reasons the taking of bait from infested waters is prohibited. It is not possible to verify that the infested water is free of ecologically harmful exotic species because there are microscopic life states of some ecologically harmful exotic species that cannot be detected in the field.

It is reasonable and necessary to require a permit for transfer of fish from May 1 to October 31 because the potential for transferring undesirable exotic species is much higher during that time period when microscopic zebra mussel larvae and Eurasian water milfoil fragments are most abundant.[17] During the remaining months of the year, chance of spread is much lower. By requiring a permit the Department can monitor the transfer of nets and equipment between infested water and non-infested water.

Subpart 2. **Disposition of water used to transport fish from infested waters.** This subpart requires that waters used to transport live fish from infested waters pursuant to subpart 1 be disposed at sites approved by the Commissioner. The transfer of fish from infested waters poses risk of spreading undesirable exotic species because the water used could be infested. The Commissioner will approve sites that are found acceptable for disposal of transfer water because such sites will preclude chance of entry into non-infested waters. It is reasonable to require that water used to transport fish from infested waters be disposed of only at particular

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[17] Snyder, Fred L. 1991. *Zebra mussels in the Great Lakes: The invasion and its implications.* Ohio Sea Grant.

sites which the Commissioner designates. This is necessary to assure that the water will not be discharged into non-infested waters. For example, it is not desired to have water disposed of in drainage ditches, rather it is preferred to have it disposed into infested water or on dry land. This subpart also provides assurance to the transporter that the water may be disposed of without concerns of liability for transferring ecologically harmful exotic species to non-infested waters.

Subpart 3. **Persons leaving select infested waters.** This subpart prohibits the transport of water in watercraft, their associated equipment, livewells, and bait containers from waters with specific undesirable exotic species. This requirement is necessary because the specific undesirable exotic species found in these infested waters have life stages that are not visible to the naked eye and could be present and unnoticeable in water found in boats and equipment. The waters identified in the rule have been found to have populations of the designated species and are known to be popular fishing and boating water bodies, where transfer of boats and fishing gear to another non-infested water body is a common activity. It is reasonable and necessary to require draining of bait containers, livewells and bilges, so this obvious pathway for spread can be minimized.

Subpart 4. **Diversion, appropriation, and transportation of infested waters.** This subpart prohibits the appropriation and transport of infested waters on public roads or off riparian property without a permit. It also prohibits diversion of infested waters without a permit. The subpart does provide for an exception for emergencies, such as fire emergencies, where water must be appropriated quickly to save life or property and non-infested waters may not be readily available. The purpose of this rule is to prevent the spread of infestations to non-infested waters by the inadvertent or intentional discharge of infested waters during transportation unless done pursuant to the conditions and limitations of a water appropriation or public works permit pursuant to Minnesota Statutes, chapter 103G, if applicable, or an infested waters diversion or transportation permit pursuant to part 6216.0500, subpart 6, of these rules. However, it is clearly reasonable to allow such usage in emergency situations where an alternative water supply is not available or feasible.

Subpart 5. **Fish hatchery or aquatic farm operations in infested waters.** This subpart governs the use of infested waters for fish hatchery or aquatic farm operations. Natural lakes or wetland basins that are identified by the Commissioner as infested will not be licensed for aquatic farms or private fish hatchery use pursuant to item A. Hatchery operations involve moving watercraft and capture equipment between natural waters and therefore the risk of transfer of undesirable species to other waters is high. There are currently no rearing waters that are infested. By not licensing infested waters it offers protection to keep most rearing waters non-infested which benefits the public and the aquaculture industry.

It is necessary and reasonable to prohibit these operations on infested waters in order to protect the non-infested waters of the state. At the current time, there are more than adequate numbers of natural waterbodies available for such ventures

that are not infested so this limitation should not impact commercial business to any great extent.

On the other hand, artificial water basins dug or created on private lands, with populations of undesirable exotic species or ecologically harmful exotic species such as water milfoil and zebra mussels may be used for aquatic farm or private hatcheries under license by the Department pursuant to item B. Nets and equipment that have been used in the ponds must be dried for at least ten days or frozen for a minimum of two days before they are used in noninfested waters.

The ability to use infested artificial ponds is reasonable because there have been capital investments made at these sites, the facilities cannot be moved, and the undesirable exotic species populations may be eradicated from the facilities, where eradication of most ecologically harmful exotic species is not possible in natural water bodies. The requirement to freeze or dry the nets and equipment is identical to the requirement for nets used in natural infested waters. It is reasonable and necessary to prevent the accidental transport of ecologically harmful exotic species on the equipment. No alternative methods that would be effective on zebra mussels, Eurasian water milfoil, and other ecologically harmful exotic species are available to decontaminate equipment .

Item C states that the Commissioner may license aquatic farms or fish hatcheries to use infested water as a source for the facility's water and that the Commissioner may require that the infested waters be treated to eliminate the undesirable exotic species. The ability to use infested water in fish rearing facilities, where it is possible to treat the water before, during, or after its use, so as not to contaminate other waters, is reasonable because there have been capital investments made at these sites, the facilities cannot be moved, and the ecologically harmful exotic species populations may be eradicated from the facilities. Chemicals can be used for killing zebra mussels and herbicides or screens could be used to eliminate undesirable aquatic plants from closed fish rearing systems, where eradication of most undesirable exotic species is not possible in natural water bodies.

Where the Commissioner allows the use of infested water to raise fish, it is reasonable and necessary for the Commissioner to require treatment of water in order to minimize the risk of spread to non-infested waters.

Item D states that fish raised in artificial basins that have populations of Eurasian water milfoil, zebra mussels, and other undesirable exotic species, or in any facility using infested water as a source, must be sold directly to a wholesale buyer for processing, or for stocking in other infested waters containing populations of the same species of undesirable exotic species. This is necessary to minimize the risk of transfering undesirable organisms in water or on equipment to other waters in the state. It is reasonable to allow the sale of fish from artificial basins with infested water for processing or limited stocking because there are minimal ecological risks to the waters of the state if the fish are used in this manner.

Subpart 6. **Infested waters diversion or transportation permits.**

This subpart specifies how applications for permits to divert or transport water from infested waters shall be made. It also specifies that the time frame for the Department to act on the permit application is 90 days, that conditions and limitations shall be stated in the permit, and that a permit may be modified at any time by the Department.

It is reasonable and necessary to specify the process for obtaining a permit, conditions and limitations of a permit, and whether a permit may be modified, so that potential permittees will understand the permit procedure, that there may be conditions and limitations to permits, and that the Department reserves the right to modify the permit. It is reasonable and necessary to retain the right to modify the permit in the event that there are changes to the circumstances upon which the permit was issued and which may provide new risks of undesirable species being transferred to other waters, or new treatment methods are available that thereby necessitates or allows revisions of the permit to protect the state's resources.

Part 6216.0600 **Violations; Confiscations.**

This part restates Minn. Stat. Secs. 18.317 and 84.9691 which make violation of these rules a misdemeanor criminal offense. It is reasonable to restate this penalty in the proposed rule so that the public will be fully aware of the penalties that accompany violation of the proposed rule provisions.

This part also provides the Department with certain authority to act where activities regulated by the proposed rule are undertaken without the necessary permit. Specifically, this part authorizes the Department to confiscate and, at the Department's discretion, destroy any ecologically harmful exotic species where a permit has not been obtained as required. The rule also authorizes the Department to issue an order to cease appropriation or diversion of infested water without a permit. Lastly, the rule shifts the expense or loss associated with the Department's actions to the permittee or other responsible person.

It is reasonable, as well as consistent with legislative intent, to provide the Department the authority to take appropriate action to minimize the risk that an ecologically harmful exotic species will become established or spread in the state. To otherwise place conditions upon activities involving ecologically harmful exotic species without providing the Department with the authority to take action where such activities are done without a permit or contrary to the conditions of a permit, would leave little incentive for persons to comply with the proposed rules. These penalties are necessary to assure that there is an incentive to comply with the proposed rules, while at the same time providing the Department with the means to minimize the chance of establishment and/or spread of an ecologically harmful exotic species due to the unauthorized actions of others.

OTHER CONSIDERATIONS

FISCAL IMPACT ON LOCAL GOVERNMENT

If the adoption of a rule will require the expenditure of public money by local public bodies in excess of $100,000 per year for the first two years following adoption of the rules, the adopting agency may be required to prepare a written statement giving an estimate of the total cost to all local public bodies to implement the rule. Minn. Stat. sect. 14.11, subd. 1. As all the permitting and most enforcement responsibilities will be performed by the Department, it is not anticipated that the proposed rules will require the expenditure of public money by local public bodies. Thus, no written statement is required or provided.

IMPACTS ON AGRICULTURAL LAND AND FARMING OPERATIONS

If the adoption of the rule will have a direct and substantial adverse impact on agricultural land or farming operations in the state, the agency must comply with the requirements of Minn. Stat. Secs. 17.80-.84, Minn. Stat. sect. 14.11, subd. 2, and 14.111. It is not anticipated that the proposed rules shall have a direct or a substantial adverse impact on agricultural land or farming operations within the State of Minnesota.

SMALL BUSINESS CONSIDERATIONS

When an agency proposes a new rule which may affect small businesses, the agency is required to consider five methods for reducing the potential impact. Minn. Stat. sect. 14.115, subd. 2 (1992). As discussed below, the Department has considered the suggested methods for reducing the impact on small business and has concluded that the criteria set forth in the proposed rule are the minimum necessary to pursue the goal of preventing the establishment and spread of ecologically harmful exotic species within the state.

1. The establishment of less-stringent compliance or reporting requirements for small businesses. The proposed rules have modest requirements for reporting of business activities. Specifically, the proposed rules require that businesses engaged in commercial fishing activities in infested waters notify Department officials before certain fishing activities take place. These reporting requirements are minimal and are consistent with the statutory intent to control the establishment of undesirable exotic species within the state. The Department intends to respond quickly when notified to minimize the impact of such inspections on the commercial fishing industry. These requirements should have a minimum impact on business, regardless of size.

2. The establishment of less-stringent schedules or deadlines for compliance or reporting requirements for small businesses. The proposed rules require that notice be given to the Department prior to certain commercial fishing

activities so that the Department may inspect nets and other associated commercial fishing equipment.

These deadlines/schedules set are minor and are not dependent upon the size of the business, and therefore it is not practical for the Department to propose a less-stringent standard for small businesses. In addition, the risks posed by commercial fishing activities in infested waters are present regardless of the size of the business and these requirements cannot be ignored.

3. Consolidation or simplification of compliance or reporting requirements for small businesses. The Department has already taken steps to accomplish this requirement for all permittees. The Department proposes to consolidate and simplify compliance through its permitting application and the notification requirements which apply to commercial fisheries. It is not anticipated that the application or notification requirements will be onerous whatsoever to any business, large or small, or any other person. The notification requirement only applies to a small segment of the regulated public and only involves informing the Department of its intentions and timetable for further commercial fishing. Thus, the Department does not believe that the compliance or reporting requirements of these proposed rules will be time-consuming or overtaxing to any applicant, small business or otherwise.

4. The establishment of performance standards for small businesses to replace design or operational standards required in the rule. The proposed rules do not contain to any great extent design or operational standards in the manner which could be eliminated through the use of performance standards. The outcome pursued by the Department is the prevention of the establishment of ecologically harmful exotic species in the state. To merely tell small business to pursue this goal without any limitations dictated by the agency would most likely be ineffective and result in inconsistent enforcement of the program. It can take as few as one mistake to establish an ecologically harmful exotic species in the state, or spread an existing species to previously non-infested areas making all previous efforts of prevention meaningless. To attain the goal set by the Legislature, consistent application is necessary.

5. The exemption of small business from any or all requirements of the rule. If the Department were to implement this proposed option in the application of the proposed rules, the intent of the statute to prevent the establishment and spread of ecologically harmful exotic species in the state of Minnesota could be defeated. As stated above, it only takes one mistake to make all previous efforts meaningless. Thus, the Department does not propose exempting small businesses from any or all requirements of the rule.

Minn. Stat. sect. 14.115, subd. 4 also requires the Commissioner to make efforts to include small businesses in the rulemaking process. This has been accomplished for the proposed rules by:

(1) Distributing and taking comment on drafts of the proposed rules; notices of

intent to solicit outside opinion was published in the State Register on November 1, 1993; October 31, 1994; and July 3, 1995.
(2) Meeting with members of the aquaculture, commercial fishing and commercial minnow industries; and
(3) Direct notification of affected small business through written correspondence with industry representatives.

WITNESSES

If these rules go to public hearing, the witnesses listed below may testify on behalf of the Department in support of the need and reasonableness of the rules. The witnesses will be available to answer questions about the development and content of the rules. The witnesses for the Department of Natural Resources include:

Jay Rendall, Exotic Species Coordinator
DNR Division of Fish and Wildlife
500 Lafayette Road
St. Paul, MN 55155-4020
(612) 297-1464

Ed Boggess, Wildlife Program Manager
DNR Section of Wildlife
500 Lafayette Road
St. Paul, MN 55155-4007
(612) 297-2072

Steve Hirsch, Fisheries Program Manager
DNR Section of Fisheries
500 Lafayette Road
St. Paul, MN 55155-4012
(612) 296-0791

Roy Johannes, Commercial Fisheries Program Coordinator
DNR Section of Fisheries
500 Lafayette Road
St. Paul, MN 55155-4012
(612) 296-2308

Mike Grupa, Administrative Enforcement Officer
DNR Division of Enforcement
500 Lafayette Road
St. Paul, MN 55155-4047
(612) 297-2447

CONCLUSION

Based on the foregoing, the Department's proposed rules are both necessary and reasonable.

RODNEY SANDO
Commissioner
Department of Natural Resources

By Gail Lewellen
Gail Lewellen,
Assistant Commissioner of Human Resources and Legal Affairs

Dated 12-21-95

APPENDIX A - MINNESOTA RULE 6110.1500, SUBPART 7.

Buoys or signs indicating an area that is infested with Eurasian water milfoil may be marked using a solid yellow sign or buoy. If a buoy is used, it shall be no less than four inches in diameter and extend at least 30 inches above the surface of the water. The words "Milfoil" or "Milfoil Area" must appear on opposing sides of the buoy in at least two-inch high black letters. If a sign is used, it shall be no more than than 12 inches in width or more than 18 inches in height and extend at least 30 inches above the surface of the water at normal high water level. The words "Milfoil" or "Milfoil Area" must appear on the sign in at least two-inch high black letters.

APPENDIX B - DEFINITION OF LIMITED INFESTATION OF EURASIAN WATER MILFOIL

M.S. 84.967, Subd. 3. Limited Infestation of Eurasian Water milfoil. "Limited infestation of Eurasian water milfoil" or "limited infestation" means an infestation of Eurasian water milfoil that occupies less than 20 percent of the littoral area of a waterbody up to a maximum of 75 acres, excluding water bodies where mechanical harvesting is used to manage Eurasian water milfoil or where no Eurasian water milfoil control is planned.

APPENDIX C - LIST OF CONTAMINATED WATERS INFESTED WITH ONE OR MORE OF THE FOLLOWING SPECIES: EURASIAN WATER MILFOIL, ZEBRA MUSSELS, RUFFE, SPINY WATER FLEA, AND WHITE PERCH

WHEREAS, state law directs the department of natural resources to establish a program to prevent and curb the spread of ecologically harmful exotic species and identify waters contaminated with Eurasian water milfoil, zebra mussels, or other undesirable exotic species of aquatic plants and wild animals;

NOW THEREFORE, I, Rodney W. Sando, Commissioner of Natural Resources, pursuant to authority vested in me by Minnesota Statute 18.317 (Undesirable Exotic Species) and other applicable law, do hereby identify for purposes of Minnesota Statute 18.317, Subd. 3a , M.S. 84.9692, and any other applicable laws and rules, the following contaminated waters of the state that are infested with one or more of the following species: Eurasian water milfoil, zebra mussels, ruffe, spiny water flea, and white perch.

County	Waterbody	DNR Protected Waters Inventory Number	Species Present
Anoka:	Cenaiko	02-0654	Eurasian water milfoil
	Crooked	02-0084	Eurasian water milfoil
	Otter	02-0003	Eurasian water milfoil
	Unnamed (in Springbrook Nature Center)	02-0688	Eurasian water milfoil
Carver:	Ann	10-0012	Eurasian water milfoil
	Auburn	10-0044	Eurasian water milfoil
	Bavaria	10-0019	Eurasian water milfoil
	Lotus	10-0006	Eurasian water milfoil
	Minnewashta	10-0009	Eurasian water milfoil
	Pierson	10-0053	Eurasian water milfoil
	Riley	10-0002	Eurasian water milfoil
	Schutz	10-0018	Eurasian water milfoil
	Stone	10-0056	Eurasian water milfoil
	Virginia	10-0015	Eurasian water milfoil
	Waconia	10-0059	Eurasian water milfoil
	Zumbra	10-0041	Eurasian water milfoil
Chisago:	Green Lake	13-0041	Eurasian water milfoil
	Rush	13-0069	Eurasian water milfoil
Crow Wing:	Bay	18-0034	Eurasian water milfoil
Dakota:	Crystal	19-0027	Eurasian water milfoil
	Lac Lavon	none	Eurasian water milfoil

County	Waterbody	DNR Protected Waters Inventory Number	Species Present
Douglas:	Oscar	21-0257	Eurasian water milfoil
Hennepin:	Arrowhead	27-0045	Eurasian water milfoil
	Brownie	27-0038	Eurasian water milfoil
	Bryant	27-0067	Eurasian water milfoil
	Bush	27-0047	Eurasian water milfoil
	Calhoun	27-0031	Eurasian water milfoil
	Cedar	27-0039	Eurasian water milfoil
	Christmas	27-0137	Eurasian water milfoil
	Dutch	27-0181	Eurasian water milfoil
	Eagle	27-0111	Eurasian water milfoil
	Fish	27-0118	Eurasian water milfoil
	Forest	27-0139	Eurasian water milfoil
	Harriet	27-0016	Eurasian water milfoil
	Hiawatha	27-0180	Eurasian water milfoil
	Independence	27-0176	Eurasian water milfoil
	Lake-of-Isles	27-0040	Eurasian water milfoil
	Libbs	27-0085	Eurasian water milfoil
	Little Long	27-0179	Eurasian water milfoil
	Long	27-0160	Eurasian water milfoil
	Medicine	27-0104	Eurasian water milfoil
	Minnehaha Cr.	27-0000	Eurasian water milfoil
	Minnetonka	27-0133	Eurasian water milfoil
	Niccum's Pond	private	Eurasian water milfoil
	Nokomis	27-0019	Eurasian water milfoil
	Parker's	27-0107	Eurasian water milfoil
	Rebecca	27-0192	Eurasian water milfoil
	Round	27-0071	Eurasian water milfoil
	Sarah	27-0191	Eurasian water milfoil
	Schmidt	27-0102	Eurasian water milfoil
	Swan	27-0000	Eurasian water milfoil
Kanabec:	Knife	33-0028	Eurasian water milfoil
Olmsted:	George	55-0008	Eurasian water milfoil
Ramsey:	Bald Eagle	62-0002	Eurasian water milfoil
	Gervais	62-0007	Eurasian water milfoil
	Island	62-0075	Eurasian water milfoil
	Keller	62-0010	Eurasian water milfoil
	Silver	62-0001	Eurasian water milfoil
	Sucker	62-0028	Eurasian water milfoil
	Vadnais	62-0038	Eurasian water milfoil
	Wabasso	62-0082	Eurasian water milfoil

County	Waterbody	DNR Protected Waters Inventory Number	Species Present
St. Louis:	Cloquet River from Island Lake to the St. Louis River		Spiny water flea
	Fish Lake	69-0491	Spiny water flea
	Island Lake	69-0372	Spiny water flea
Scott:	Lower Prior	70-0026	Eurasian water milfoil
Todd:	Sauk Lake	77-0150	Eurasian water milfoil
Washington:	White Bear	82-0167	Eurasian water milfoil
	St. Croix R.	82-0001	Eurasian water milfoil
Wright:	Augusta	86-0284	Eurasian water milfoil
	Beebe	86-0023	Eurasian water milfoil
	Clearwater	86-0252	Eurasian water milfoil
	Little Waverly	86-0106	Eurasian water milfoil
	Pulaski	86-0053	Eurasian water milfoil
	Rock	86-0182	Eurasian water milfoil
	Sugar	86-0233	Eurasian water milfoil
	Waverly	86-0114	Eurasian water milfoil
Multiple Counties:	Lake Superior	16-0001	Zebra mussel, spiny water flea, ruffe, white perch
	Mississippi River: downstream of St. Anthony Falls		Zebra mussel, Eurasian water milfoil
	St. Louis River: from the Cloquet River downstream to the Fond du Lac dam		Spiny water flea
	St. Louis River: downstream of the Fond du Lac dam		Zebra mussel, spiny water flea, ruffe, white perch
	Minnesota River: downstream of Shakoppee		Zebra mussel

Dated at St. Paul, Minnesota, this 21st day of December, 1995.

RODNEY W. SANDO, Commissioner
Department of Natural Resources