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**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**RIN 1018-AB66**

**Endangered and Threatened Wildlife  
and Plants; Determination of  
Endangered Status for the Plant  
*Isoetes louisianensis* (Louisiana  
Quillwort)**

**AGENCY:** Fish and Wildlife Service,  
Interior.

**ACTION:** Final rule.

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**SUMMARY:** The Service determines *Isoetes louisianensis* (Louisiana quillwort) to be an endangered species under the authority contained in the Endangered Species Act of 1973, as amended. This small plant is only known to exist in Washington and St. Tammany Parishes, Louisiana. Threats to the species include timber harvest and gravel mining without Best Management Practices, and any other activity that would affect the hydrology

or stability of the streams in which the plant occurs. This rule will implement the full protection of the Endangered Species Act for *Isoetes louisianensis*.

**EFFECTIVE DATE:** November 27, 1992.

**ADDRESSES:** The complete file for this rule is available for inspection by appointment during normal business hours at the Jackson Field Office, U.S. Fish and Wildlife Service, 8578 Dogwood View Parkway, Jackson, Mississippi 39213.

**FOR FURTHER INFORMATION CONTACT:** Paul Hartfield at the above address (601/965-4900).

**SUPPLEMENTARY INFORMATION:**

**Background**

*Isoetes louisianensis* is a small, grasslike, aquatic herb in the quillwort family. Quillworts are seedless vascular plants which reproduce by spores and are closely related to ferns. Their slender quill-like leaves arise from a short fleshy stem (corm) that is shallowly rooted in the substrate. The leaves are rounded, hollow and swollen at their base. The sporangia (spore-containing structures) are embedded in the broadened bases of the leaves. Quillworts are heterosporous, producing both megasporangia and microsporangia. Megaspore morphology and habitat preference are primary characters for the identification of *Isoetes* species (Taylor *et al.* 1989).

*Isoetes louisianensis* was described in 1973 from Thigpen Creek, a tributary of Mill Creek in the Bogue Chitto drainage, Washington Parish, Louisiana (Landry and Thieret 1973). Distinctive characters on which the species was based included born-spotted sporangial walls and megaspores with high reticulate ridges producing a spiny effect. The leaves are numerous, varying in length from 15 to 40 centimeters (6 to 16 inches) depending on water depth (Kral 1983). *Isoetes louisianensis* has been reported to sporulate twice a year, producing megaspores in the spring and microspores in the fall (Landry and Thieret 1973).

In 1982, Brian Boom reduced the specific status of the Thigpen Creek population of *Isoetes* to a hybrid. He considered the population's distinctive characters (sporangial wall coloration, megaspore ornamentation, sporulation frequency) to be intermediate between *I. engelmannii* and *I. melanopoda*, although these two species are not known to co-occur. Luebke and Taylor (1986) questioned the hybrid parentage proposed by Boom for this as well as other purported hybrid crosses. They noted the absence of the putative parents from the hybrid localities; a lack

of cytological evidence supporting the proposed crosses; and the uniformity of spore morphology in the putative hybrids and their viability. Hybrid spores are typically abortive and are not normal in appearance, and primary laboratory produced *Isoetes* hybrids are usually sterile.

Taylor *et al.* (1989) treat *Isoetes louisianensis* as a distinct species in an unpublished manuscript for the Flora of North America project. They acknowledge that while *I. louisianensis* may be of hybrid origin (it is tetraploid,  $2n=44$ ) with *I. engelmannii* as of its parents, the species' spores are uniform in size and texture and readily germinate in culture. After examining data provided by Taylor and others, Boom now considers the plant to be a distinct species (*in litt.* 1991). Based on the present consensus within the botanical community, the Service recognizes the taxonomic validity of *Isoetes louisianensis*.

*Isoetes louisianensis* is a semi-aquatic plant known from only three locations in Washington and St. Tammany Parishes, Louisiana. A report of the species from Worth County, Georgia (Bruce *et al.* 1980) was in error (Snyder *in litt.* 1988). The plant is found in the Mill Creek drainage along a 1.25 kilometer (km) (0.75 mile) reach of Thigpen Creek, a 0.5 km (0.3 mile) reach of Clearwater Creek and in a 1.0 km (0.6 mile) reach of Mill Creek (McInnis 1991). Mill Creek is formed by the confluence of its tributaries Thigpen and Clearwater Creeks. The plants are found at the lower portions of the tributaries and at the uppermost reach of Mill Creek, and are thus considered a single population. Four immature plants, tentatively identified as *Isoetes louisianensis*, are known from a single site in Miller Creek (McInnis 1991). These streams are in the Bogue Chitto River drainage of Washington Parish. A localized population of *Isoetes louisianensis* also occurs in Little Bogue Falaya Creek, a Lake Pontchartrain tributary in St. Tammany Parish. The streams in which the quillworts are found are typically small to medium sized, shallow and with clear, tannin-colored water, running through narrow riparian forest communities. Substrates are stable mixtures of silt, sand and gravel.

*Isoetes louisianensis* occurs predominately on sand and gravel bars on accreting sides of streams and in moist over-flow channels. The species is found less commonly on low sloping banks near, and occasionally below, the low water level. Plants are regularly inundated as much as 50 centimeters (cm) (20 inches) following rains, and may be inundated for long periods in wet

seasons. Corm depth has been found as great as 3 cm (1.2 inches), indicating a tolerance for some deposition of materials. Plants can be found singly or in numbers of several hundred in the Mill Creek drainage. Only four plants are known from Miller Creek. Close herbaceous associates are *Viola primulifolia*, *Scirpus divaricatus*, *Justicia lanceolata*, *Hypoxis leptocarpa*, *Xyris* sp., *Carex* sp., and the liverwort *Pallavicinia lyellii*.

It is possible that the species was once more widespread. However, numerous small stream riparian habitats with similar physiognomy and vegetational composition have been searched in the Bogue Chitto River drainage in Louisiana and Mississippi, and in other drainages across south Mississippi without finding *Isoetes louisianensis* (Rosso 1987, McInnis 1991). McInnis (1991) noted that the numerous small streams that were unsuccessfully searched differed from known localities in type or stability of substrate, steepness of banks, absence of sand or gravel bars, seasonal lack of flow, or habitat alteration that has resulted in siltation, erosion, pollution, etc. Other wetland habitats surveyed without finding the species, included bottomland hardwood forests, pitcher plant seeps, large stream riparian zones, edges of ponds and gravel pits, ditches, mudholes, and wet areas along roadsides and utility right-of-ways.

Federal actions involving *Isoetes louisianensis* began with Section 12 of the Endangered Species Act of 1973 (Act), which directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975. On July 1, 1975, the Service published a notice in the Federal Register (40 FR 27823) of its acceptance of the report of the Smithsonian Institution as a petition within the context of Section 4(c)(2), now Section 4(b)(3)(A), of the Act and of its intention thereby to review the status of those plants. On June 16, 1976, the Service published a proposed rule in the Federal Register (41 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to Section 4 of the Act. *Isoetes louisianensis* was included in the Smithsonian petition and the 1976 proposal. General comments received in relation to the 1976 proposal were summarized in an April 28, 1978 Federal Register publication (43 FR 17909).

The Endangered Species Act Amendments of 1978 required that all

proposals over 2 years old be withdrawn. A 1-year grace period was given to proposals already over 2 years old. In the December 10, 1979, **Federal Register** (44 FR 70796), the Service published a notice of withdrawal of the June 16, 1976, proposal, along with four other proposals that had expired. *Isoetes louisianensis* was included as a category 2 species in a revised list of plants under review for threatened or endangered classification published in the December 15, 1980, **Federal Register** (45 FR 82480). This species was maintained in category 2 in the Service's updated plant notices of September 27, 1985 (50 FR 39526) and February 21, 1990 (55 FR 6184). Category 2 species are those for which there is some evidence of vulnerability, but for which there are not enough data to support listing proposals at this time. The Service funded a status survey for this plant species in 1990. Field surveys were conducted during the summer and early fall of that year. A final report was received and approved by the Service in early 1991. This report (McInnis 1991) and other information support the listing.

Section 4(b)(3) of the Endangered Species Act, as amended in 1982, requires the Secretary to make certain findings on pending petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 amendments further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. This was the case for *Isoetes louisianensis* because of the acceptance of the 1975 Smithsonian report as a petition. In October of 1983, and succeeding years, the Service found that the petitioned listing of *Isoetes louisianensis* was warranted, but that listing this species was precluded due to other higher priority listing actions. Also, additional data were being gathered. The proposed rule to list *Isoetes louisianensis* as an endangered species was published on October 21, 1991 (56 FR 52500), and constituted the final 1-year finding that was required.

#### Summary of Comments and Recommendations

In the proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. A newspaper notice inviting public comment was published in the *Bogalusa News* on November 10, 1991. The comment period closed on December 20, 1991. During the initial comment period, a public hearing was requested by John M. McNeal, Franklinton, Louisiana. The comment period was reopened on

February 18, 1992, and extended until March 23, 1992, to accommodate the public hearing. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. In addition to letters of notification mailed to agencies, organizations, and individuals, newspaper notices of the public hearing and reopening of the comment period were published in the *Baton Rouge Advocate* on February 22, 1992, and the *Bogalusa News* on February 23, 1992. The hearing was held at the Louisiana Department of Wildlife and Fisheries Building on March 11, 1992, with 76 people in attendance. Oral comments were received from nine individuals opposing the proposed action, following a statement by the Service. In addition, two written comments were submitted by individuals, one supporting and one opposing the listing.

The Service also received 24 letters concerning the proposed rule during the comment periods, including a request for a public hearing. Senator John Breaux and Representative Richard H. Baker requested additional information concerning the proposed rule. The Louisiana Department of Wildlife and Fisheries provided a letter in support of the proposal, and seven letters from five conservation organizations also expressed support for the proposed listing. One State agency, a local government organization, two private non-profit organizations, four private companies, and five individuals expressed opposition to the proposal. Senator J. Bennett Johnston expressed opposition due to economic concerns.

Written comments and oral statements presented at the public hearing and received during the comment period are covered in the following summary. Comments of a similar nature or point are grouped into a number of general issues. These issues and the Service's response to each are discussed below:

**Issue 1:** Several commenters suggested that survey efforts were inadequate to define the range of the species, and listing should be deferred until further study is undertaken. Survey methods were also questioned. One commenter suggested that the discovery of an additional population in St. Tammany Parish during the comment period was an indication of a wider distribution for the species.

**Response:** The listing is based on the best available scientific and commercial information, including literature records, a survey by University of Southern Mississippi botanists, and a Service

contracted field survey by the Louisiana Natural Heritage Program (LNHP). Prior survey efforts by the LNHP in numerous wetland habitats in southeast Louisiana and by other botanists in south Mississippi failed to locate additional populations of *Isoetes louisianensis*. The type locality for the species is a transitional zone between low-gradient bayheads, and steeper gradient, well-defined streams. The most recent LNHP survey (McInnis 1991) identified similar areas on soils and topographic maps and field checked these potential locations for the presence of the species. The initial survey located only one new population consisting of only four plants (Miller Creek). However, the LNHP's continuing effort to identify and field check potential quillwort habitat also led to the discovery of the Little Bogue Falaya population in St. Tammany Parish.

The Service believes that survey efforts have been adequate, and have effectively confirmed the rarity of this species and threats to its habitat. The Service encourages the search for additional quillwort populations; however, the potential discovery of a few additional populations would not offset the magnitude of the activities that threaten the species (see Factors Affecting the Species, below), and to defer listing would only defer protection of the species.

**Issue 2:** Several comments questioned the magnitude of threat posed by forestry activities and gravel mining to the species, since these are traditional activities in the area and the plant still survives. Other commenters noted that the proposed rule gave no evidence of a decline of the species.

**Response:** Quillwort habitat along Clearwater Creek has been seriously affected by mining and inappropriate timber harvest. There has been a reduction of flows due to diversion of flows by mining activities, and a change in streamside vegetation composition due to canopy removal. This area supports few plants in comparison to the less impacted portions of Mill/Thigpen Creeks. The plants have been completely eliminated around the Louisiana Highway 16 bridge on Mill Creek due to the removal of canopy vegetation and construction activities. Gravel mining is likely to expand into the headwaters of Thigpen Creek, above the largest known quillwort population. Alteration of the hydrology of this stream could jeopardize the continued existence of the largest and most extensive population of the species. The Miller Creek population is vulnerable due to its limited number of plants.

Logging has recently occurred adjacent to the Little Bogue Falaya population.

**Issue 3:** One commenter stated that the adoption of Louisiana's recommended Best Management Practices for timber harvesting would remove perceived threats to streamside vegetation. Several commenters believed that current land registry activities by the Louisiana Nature Conservancy were adequate to protect the plant, and that listing was unnecessary.

**Response:** Many landowners are practicing responsible timber management where the plants occur, and their timber harvest activities pose no apparent threat to the species. However, not all landowners follow Best Management Practices, and changes in current practices over a relatively small area could seriously threaten the species.

The Service is aware of the recognition and protection that has developed for the Mill and Thippen Creek populations of *Isoetes louisianensis*, primarily through registry and management programs of the Louisiana Nature Conservancy. Their efforts, however, have little effect on off-site threats to the species. Listing will insure consideration of the species under the authority of the Endangered Species Act relative to Federal activities, or activities with Federal involvement, that may affect the species.

**Issue 4:** One commenter stated that section 7 of the Act does not apply to plants on private property, and therefore, listing is not appropriate.

**Response:** Endangered plants on private lands are covered by section 7 provisions of the Act when Federal actions on private lands, or private actions with Federal involvement, may affect the species (see Available Conservation Measures, below).

**Issue 5:** One commenter suggested that information in the proposed rule was incorrect and misleading, without providing any details or specifics on the content of the proposed rule.

**Response:** The Service has used the best scientific and commercial data available in the preparation of this listing.

**Issue 6:** Two commenters believe the taxonomic status of *Isoetes louisianensis* remains unresolved. One questioned whether the identity of plants in Miller Creek had been verified.

**Response:** The consensus of the botanical scientific community is that *Isoetes louisianensis* is a valid species (see Background, above). The identity of the four immature plants from Miller Creek has not been verified due to the

absence of spores that are needed for positive identification; however, due to their location and similarity of habitat, the Service will consider them as *Isoetes louisianensis* unless they are proven otherwise.

**Issue 7:** Several commenters believe the Service did not designate critical habitat in order to avoid consideration of economic impacts.

**Response:** Critical habitat is not being designated for reasons discussed in that Section (see Critical Habitat, below). The economic assessment associated with critical habitat designation is to determine the benefits of designating an area as critical habitat. The Secretary of Interior may exclude an area from critical habitat if the benefits of exclusion outweigh the benefits of designating the area as critical habitat. However, an area may not be excluded if failure to designate critical habitat will result in extinction of the species. Listing does not rest on economic considerations, regardless of critical habitat designation.

**Issue 8:** One commenter complained that notice of the proposal was inadequate to affected parties, and that the Service has been unresponsive to local concerns.

**Response:** Steps taken by the Service to notify the public of the proposed rule are summarized at the beginning of this section. The Service has attempted to address local concerns as they have become evident through letters of notification, interviews with local newspapers, telephone conversations with local residents, and letters to landowners, government officials, and local newspapers.

**Issue 9:** The location of the public hearing was an issue to several commenters, who believed the site was chosen to exclude local participation. Two commenters requested a second public hearing.

**Response:** According to Service records, owners of property where *Isoetes louisianensis* colonies are located reside in Franklinton, Boutte, Mandeville, and New Orleans, Louisiana. Baton Rouge was selected as the hearing site because it is conveniently accessible from all these locations. It is also a location where many agencies and interested groups that may be affected are located.

The Service perceives no benefit to be gained by another public hearing. Ample opportunity has been provided for comment and public input. The public hearing and the re-opening of the comment period were well advertised. In addition to the publication of Legal Notices announcing the public hearing, at least two articles were written in

local newspapers discussing the listing action and associated issues in detail. Local residents in Washington Parish also organized and held a town meeting with the purpose of encouraging participation in the hearing and comment process. Approximately 150 letters of notification announcing the reopening of the comment period and the public hearing were mailed by the Service, 81 of these went to local landowners. The public comment period was reopened from February 18 to March 23, 1992, providing further opportunity to submit written comments from any interested parties unable to attend the hearing.

**Issue 10:** Two comments expressed concern that agents or contract employees of the Service trespassed on private property while developing information for the proposed rule. If trespass did not occur, then they considered the survey effort inadequate, since a number of local landowners in the general vicinity had not been contacted for permission to survey.

**Response:** Biologists with the LNHP conducted the primary status survey for the Service. LNHP biologists have informed the Service that the survey was conducted in accordance with Louisiana State criminal trespass law.

**Issue 11:** Many commenters expressed concern that the economic impact of the listing will be detrimental to the local economy and specific private activities. Several also believed that the listing action is restrictive and places unnecessary burden on individuals.

**Response:** The Service is required to base decisions regarding endangered or threatened status solely on biological information and is prohibited from allowing economic or nonbiological factors to affect such decisions. However, the actual extent and limits of listing effects on socioeconomic conditions are usually not as great as many people fear. Under section 7(a)(2) of the Act, Federal agencies will be required to consult with the Service if they propose to authorize, fund, or carry out any activities that may affect *Isoetes louisianensis*. In most cases, such consultation results in minor modifications to reduce the impact of the activity on the listed species. Furthermore, although some federally involved activities would have a reasonable potential to affect the quillwort (e.g., channel modification, bridge construction, pipeline crossings, gravel operations, wastewater discharge), other Federal actions would have little potential to directly affect the species (e.g. Federal loan programs, upland developments). Other private,

state, or local activities that do not involve Federal agencies would be affected only by the Act's limited prohibitions against take of endangered plants and other practices (see Available Conservation Measures, below).

*Issue 12:* Several commenters expressed the opinion that the species does not warrant being listed, because it is insignificant and has no value.

*Response:* The purpose of the Act is to conserve the ecosystems upon which endangered species depend. The usefulness or significance of *Isoetes louisianensis* is not relevant to its eligibility for protection under the Act.

*Issue 13:* Two commenters offered suggestions to protect the species or enhance its populations. One wrote that natural flooding may have similar adverse effects as gravel mining and suggested building a levee to protect quillworts and their habitat from flooding. Another suggested propagating the plant and starting other populations.

*Response:* *Isoetes louisianensis* occurs along and in small streams. It is adapted to natural flood cycles and can tolerate extended periods of flooding. Natural flooding is unlikely to have a detrimental effect on quillwort colonies. Propagation and starting new colonies is likely to be a desirable conservation action, but could be recommended only after research on potential sites. Research on this and other conservation and recovery strategies is one of the benefits that will result from the listing.

*Issue 14:* Several commenters expressed concern that listing *Isoetes louisianensis* is over-regulation, and will lead to the "taking" of private property rights.

*Response:* Prohibited acts for endangered plants are less restrictive than those for endangered wildlife and fish. In particular, section 9 "taking" prohibitions for endangered plants apply on private lands only in cases of knowing violation of any law or regulation of the State, such as the State criminal trespass law. Thus, section 9 prohibitions simply reinforce State regulations already in place. Private actions may be indirectly affected through section 7 provisions of the Act which require Federal agencies to ensure that their actions are not likely to jeopardize the continued existence of a listed species. Private actions which are federally funded or permitted will have to be planned and conducted in consideration of their impacts to this species.

### Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined *Isoetes louisianensis* (Louisiana quillwort) should be classified as an endangered species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Isoetes louisianensis* Thieret (Louisiana quillwort) are as follows:

#### A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

The primary threats to *Isoetes louisianensis* are activities that would affect the hydrology or stability of the streams in which the plant occurs. The species has been eliminated from one location in the Mill Creek drainage by construction activities and canopy removal. It has been affected in another portion of the drainage by changes in vegetation composition due to clear-cutting of streambank timber and flow diversion.

Streambank timber removal can lead to an increase in surface runoff and contributes to stream erosion and/or siltation. All known stream habitat supporting this species is associated with a well-developed stream canopy. Canopy removal alters the light regime under which the species is currently known to exist. Some streambank timber harvest has occurred at various locations along all streams supporting the taxon (McInnis 1991). Extensive clearcuts removed the stream canopy along portions of Clearwater Creek. Portions of the bayhead forests in the headwaters of Thigpen and Clearwater Creeks are currently being clearcut and replanted with pine seedlings.

*Isoetes louisianensis* is generally associated with stable substrates of coarse sand and gravel. Although the plants are occasionally found in finer soils in over-flow channels, the substrate is always firm and stable (McInnis 1991). Sand and gravel mining along Clearwater Creek is affecting the hydrology, water quality, and substrate stability of that stream and Mill Creek. Portions of Clearwater Creek have been completely cleared, channelized or re-routed by sand and gravel mining activities (McInnis 1991). The

headwaters of Clearwater Creek have been ditched to direct surface drainage away from the mining operation into Thigpen Creek. McInnis (1991) noted excessive algal growth and sediment pollution in Clearwater Creek, apparently due to alteration of the hydrologic regime, and other changes in stream dynamics caused by the clearcutting and channel alteration.

#### B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Due to the limited distribution and easily accessed habitat of *Isoetes louisianensis*, indiscriminate collecting of any plants could seriously affect this species and perhaps result in its extinction. Overcollecting is not known to occur at this time.

#### C. Disease or Predation

This plant species is not known to be threatened by disease or predation.

#### D. The Inadequacy of Existing Regulatory Mechanisms

This species is not recognized by any existing Federal or State regulation. Without listing, it would not be considered during Federal project impact evaluation under other environmental laws.

#### E. Other Natural or Manmade Factors Affecting its Continued Existence

*Isoetes louisianensis* is very restricted in range and numbers. The most extensive population occurs along only 2.75 km (1.65 miles) of continuous habitat in the lower portions of Thigpen and Clearwater Creeks and the upper portion of Mill Creek. Thigpen and Clearwater Creeks converge to form Mill Creek. Any natural or human disturbance that would affect either tributary would also impact the Mill Creek portion of the population. Only four plants are known from a single site in the Miller Creek drainage. The Little Bogue Falaya Creek population consists of at least several hundred plants in a very localized area. This restricted range makes the species vulnerable to any loss of individuals from its limited gene pool.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this final rule. Based on this evaluation, the preferred action is to list *Isoetes louisianensis* as endangered. Endangered status is appropriate due to the plant's small populations, restricted range, and continuing threats to its

habitat. An endangered species, as defined by the Act, is threatened with extinction throughout all or a significant portion of its range. Critical habitat is not being designated for reasons discussed in the following section.

#### Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not presently prudent for this species. As discussed under Factor B in the Summary of Factors Affecting the Species, *Isoetes louisianensis* is potentially threatened by taking, an activity difficult to enforce against and only regulated by the Act with respect to plants in cases of (1) removal and reduction to possession of endangered plants from lands under Federal jurisdiction, or their malicious damage or destruction on such lands; and (2) removal, cutting, digging up, or damaging or destroying in knowing violation of any State law or regulation, including State Criminal Trespass Law. Such provisions are difficult to enforce, and publication of critical habitat descriptions and maps would make *Isoetes louisianensis* more vulnerable and increase enforcement problems. All involved parties, including State/Federal agencies and principal landowners, have been notified of the location and importance of protecting this species' habitat. Protection of this species' habitat will be addressed through the recovery process and through the section 7 jeopardy standard. Therefore, it would not now be prudent to determine critical habitat for *Isoetes louisianensis*.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal involvement may include the following agencies: the Environmental Protection Agency through the Clean Water Act's provisions for pesticide registration and waste management actions, the Corps of Engineers relative to wetlands permits, and the Federal Highway Administration in the case of impacts from federally funded bridge and road construction. Continuing urban development within the drainage basins where the plant occurs may also involve the Farmers Home Administration and their loan programs.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general prohibitions and exceptions that apply to all endangered plants. All trade prohibitions of Section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale this species in interstate or foreign commerce, or to remove and reduce to possession the species from areas under Federal jurisdiction. In addition, for endangered plants, the 1988 amendments (Pub. L. 100-478) to the Act prohibit the malicious damage or destruction on Federal lands and the removal, cutting, digging up, or damaging or destroying of endangered plants in knowing violation of any State law or regulation, including State criminal trespass law. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances.

It is anticipated that few trade permits would ever be sought or issued because the species is not common in cultivation or in the wild. Requests for copies of the regulation on listed plants and inquiries regarding prohibitions and permits may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, room 432, Arlington, Virginia 22203 (703/358-2104).

#### National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

#### References Cited

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#### Author

The primary author of this rule is Paul Hartfield (see ADDRESSES section) 601/965-4900.

#### List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

**Regulation Promulgation**

**PART 17—(AMENDED)**

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for part 17 continues to read as follows:  
**Authority:** 16 U.S.C. 1361-1467; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-825, 100 Stat. 3500; unless otherwise noted.
2. Amend § 17.12(h) by adding the following, in alphabetical order under

isoetaceae, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

(h) . . .

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
isoetaceae—Quillwort family:						
isoetes louisianensis	Louisiana quillwort	U.S.A. (LA)	E	482	NA	NA

Dated: September 3, 1992.

Richard N. Smith,

Acting Director, Fish and Wildlife Service.

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