PETITION TO EMERGENCY LIST
THE ISLAND MARBLE BUTTERFLY
(*Euchloe ausonides insulanus*)
AS AN ENDANGERED SPECIES
UNDER THE U.S. ENDANGERED SPECIES ACT

Photo by James Miskelly

Prepared by

Scott Hoffman Black, The Xerces Society
Mace Vaughan, The Xerces Society

Submitted by

The Xerces Society,
Center For Biological Diversity,
Friends of the San Juans, and
Northwest Ecosystem Alliance

December 10, 2002

Ms. Gale Norton
Secretary of the Interior
Office of the Secretary
Department of the Interior
18th and C Street N.W.
Washington D.C., 20240

Ms. Norton,

The Xerces Society, Center for Biological Diversity, Northwest Ecosystem Alliance, and the Friends of the San Juans hereby formally petition to list the island marble (*Euchloe ausonides insulanus*) as endangered pursuant to the Endangered Species Act, 16 U.S.C. 1531 *et seq.* This petition is filed under 5 U.S.C. 553(e) and 50 CFR 424.14 (1990), which grants interested parties the right to petition for issue of a rule from the Assistant Secretary of the Interior.

Petitioners also request that critical habitat be designated concurrent with the listing, as required by 16 U.S.C. § 1533(b)(6)(C) and 50 CFR 424.12, and pursuant to the Administrative Procedures Act (5 U.S.C. 553).

Due to the fact that the island marble (*Euchloe ausonides insulanus*) has an extremely limited geographic range (only one small population is known to exist) and one catastrophic event could lead to its extinction, we appeal for emergency listing pursuant to 16 U.S.C. § 1533(b)(7) and 50 CFR 424.20 in order to ensure the species' survival.

We are aware that this petition sets in motion a specific process placing definite response requirements on the U.S. Fish and Wildlife Service and very specific time constraints upon those responses. 16 U.S.C. § 1533(b).

Sincerely,

Scott Hoffman Black, Executive Director
Xerces Society
4828 SE Hawthorne Blvd.
Portland, OR 97215
503-232-6639

Kieran Suckling, Executive Director
Center for Biological Diversity
P.O. Box 710
Tucson, AZ 85702
520-623-5252

Stephanie Buffum, Executive Director
Friends of the San Juans
PO Box 1344
Friday Harbor, WA 98250
360-378-2319

Dave Werntz, Science Director
Northwest Ecosystem Alliance
1421 Cornwall Ave, Suite 201
Bellingham, WA 98225
360-671-9950 x. 14

The Xerces Society is an international nonprofit organization dedicated to preserving the diversity of life through the conservation of invertebrates. The Society works with scientists, land managers, and citizens to protect invertebrates and their habitats by producing information materials, presenting educational activities, implementing conservation projects, and advocacy.

Center for Biological Diversity combines conservation biology with litigation, policy advocacy, and an innovative strategic vision, to secure a future for animals and plants hovering on the brink of extinction, for the wilderness they need to survive, and by extension for the spiritual welfare of generations to come.

Friends of the San Juans works to protect and promote the health and future of the San Juan Islands: land, water, natural and human communities.

Northwest Ecosystem Alliance was established in 1988 and is a non-profit 501(c)(3) public interest organization incorporated in the State of Washington. NWEA and its members are dedicated to the protection and restoration of biological diversity. NWEA conducts research and advocacy to promote the conservation of sensitive and endangered wildlife and their habitat in the northern Pacific region.

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I. SPECIES DESCRIPTION

The island marble is white and greenish, with a marbled texture under the hind wing and a wingspan of approximately 45 mm. The dappled pattern on the wing characterizes the species (Guppy and Shepard 2001). Female island marbles are often yellowish, and may reflect ultraviolet. Marbling occurs in large patches with equally large white patches between them (Guppy and Shepard 2001). The island marble is larger than the other subspecies with all dark markings expanded dorsally and wing bases strongly shadowed, marbling ventrally broadened and more yellow (Pyle 2002). The flight of the butterfly is straight, fluttering and usually fast. When basking, the wings are closed and oriented sideways to the sun (Guppy and Shepard 2001).

II. TAXONOMY

Layberry et al. (1998) recognized three subspecies of large marble. The boreal subspecies, *Euchloe ausonides Mayi* F. and R. Chermock, occupies most of the range of the species in Canada. *E. a. ogilvia* Back is found in northwestern British Columbia, Yukon Territory and adjacent Alaska. The island marble (*Euchloe ausonides insulanus*) was described in Guppy and

Shepard (2001) and belongs to the subfamily Pierinae. This subspecies is isolated from the rest of the species' range.

III. POPULATION DISTRIBUTION AND STATUS

A. Historic Distribution

The island marble was historically found in British Columbia, on Gabriola Island and on Vancouver Island from Nanaimo in the north, southward along the eastern edge of the island to Beacon Hill Park, Victoria (Environment Canada, 2001; Shepard 2000). Eleven collections were made between 1858 and 1908. It was recorded only at lower elevations and was apparently never common on Vancouver Island (Environment Canada, 2001). It had not been seen since 1908 and was believed extinct.

In 1998, a small population of the island marble was found on San Juan Island in Washington State. There is a remote possibility that it still occurs on three small islands that are located between Vancouver and San Juan islands (Shepard, 2000).

B. Present Distribution

In May 1998, John Fleckenstein (pers. comm., 2002) collected two individuals at American Camp, part of San Juan Island National Historical Park, San Juan County, Washington. He did not identify them at the time and did not survey the area for more individuals. They were identified in the fall of 1998.

From May 21 to 25, 2002, John Fleckenstein (pers. comm., 2002) worked with six volunteers to survey for the marble at the known site and other sites in the San Juan Islands. He found 10 to 20 individuals at American Camp. He surveyed about 10 additional sites on San Juan Island with the volunteers. Working alone, he surveyed five sites on Lopez Island, and looked for appropriate habitat at several sites on Shaw Island. None of the additional searches located the butterfly at any additional sites.

IV. HABITAT REQUIREMENTS AND STATUS

A. Habitat

There are no published accounts of the habitat of the island marble. From locality labels on the 14 specimens that are known to exist in museum collections, it appears that the butterfly inhabited open grassland in Garry Oak woodland and lower south facing slopes with open habitat (Environment Canada, 2001; Shepard, 2000). In British Columbia, Garry oak ecosystems are restricted to southeast Vancouver Island and a few small isolated areas in the lower Fraser River Valley. The San Juan Island population occurs on similar habitat (Shepard, 2000).

B. Diet

Nothing was ever recorded about the subspecies' larval food plants. Crispin Guppy (coauthor of Butterflies of British Columbia) thinks that marble larvae may have fed on mustards in mesic locations (John Fleckenstein, pers. comm., 2002). Elsewhere in the species' range, the larvae of the two other subspecies feed on wild mustards (family: Brassicaceae) of the genus *Arabis*. John Fleckenstien (pers. comm., 2002) followed several individuals at American Camp in order to document oviposition. He observed ovipositioning on field mustard (*Brassica campestris*) and tumble mustard (*Sisymbria altissimum*). He collected flower heads of field mustard with three

eggs for rearing to confirm identification of the eggs and to confirm field mustard as an appropriate food plant. One egg was lost in transit, one died before hatching. The third hatched and appeared to be feeding normally until it died, still in the first instar (John Fleckenstein, per comm., 2002)

V. CURRENT AND POTENTIAL THREATS – SUMMARY OF FACTORS FOR CONSIDERATION

Because this subspecies disappeared from Canada before 1910, it is unlikely that the spread of introduced weed species and post World War I growth of the human population were factors in its extirpation. The most likely cause for its loss is the elimination of the larval food plant by grazing sheep and/or cattle in the low, flat habitat occupied by the island marble.

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

1. Livestock grazing

The most likely cause of the loss of the island marble butterfly is the elimination of the larval food plant from its habitat through grazing by sheep or cattle (Natural Resources Canada, 1999). Mustard plants in these locations would have been prime targets for grazers like sheep and cattle. Since the eggs are laid, and the larvae feed, on the inflorescence and upper leaves, they could easily be eliminated (i.e. eaten) by grazing livestock.

Livestock grazing also may cause adverse impacts to butterfly populations by (1) trampling eggs, larvae, pupae, and adults, (2) selectively eating larval and adult food sources, and (3) disturbing the soil, which allows weeds to invade (Warren 1993).

2. Development

Garry oak ecosystems are important for the island marble. Substantial Garry oak areas in Canada have been cleared for housing and urban development: less than 5% of the region's original ecosystem coverage remains (Capital Regional District, 1997). Development pressure in Garry oak and coastal prairie habitats continues on Vancouver Island, the Gulf Islands, and the San Juan Islands. San Juan Island has the largest and fastest growing human population in the San Juans. American Camp, which now supports the only remaining island marble population, is increasingly ringed in by adjacent private land development. The realignment of the road through the park, and the construction of roads throughout the historic range of the island marble are also threats.

3. Application of herbicides

Commonly used herbicides could harm larval or adult food sources. Weed control and grassland management practices often utilize large-scale herbicide applications, potentially killing nectar and larval host plants necessary for the island marble.

4. Invasive non-native plant species

Invasion and dominance of native grasslands by exotic plants is a common issue that threatens grassland butterflies (Warren, 1993; Schultz, 1998) but little is known about the impact of invasive plants on this species habitat. Although it is unlikely that the spread of introduced weed species was a factor in its extirpation from Canada it could be a problem in the future.

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

1. Collecting

Insect collecting is a valuable component of research, including taxanomic work, and is often necessary for documenting the existence of populations and population trends. Collecting is also a potential threat to rare species. Butterfly populations that are small and easily accessible (such as the only island marble population) are especially vulnerable to over-collection.

C. Other natural or manmade factors affecting its continued existence

1. Application of insecticides

Insecticide applications could threaten island marble populations. Btk *(Bacillus thuringiensis* var. *kurstaki*), a Lepidoptera-specific insecticide, has become the pesticide of choice to treat defoliators in western forests (Wagner and Miller, 1995). In the 1990's Btk was applied in large-scale, aerial treatments to control Asian gypsy moths *(Lymantria dispar*) around Puget Sound. Btk is a bacterium that, when ingested, is lethal to butterfly and moth larvae. The threat of Btk is heightened because Btk has been shown to drift at toxic concentrations for distances greater than two miles from target spray areas (Barry et al., 1993; Whaley et al., 1998). Single-brooded species, such as the island marble, with spring-active larvae that feed during the application period for the target species are especially vulnerable to Btk (Wagner and Miller, 1995).

2. Recreation

The only known extant population is found at American Camp, part of San Juan Island National Historical Park, San Juan County, Washington. This park receives many visitors and, if not properly managed, recreation could pose a risk to these butterflies.

3. Population Dynamics and Structure

Many, if not most, insect populations normally experience large fluctuations in size (Ehrlich, 1992; Schultz, 1998). Weather, predation, and disease may cause annual changes in butterfly numbers of an order of magnitude or more. Normal population fluctuations, coupled with habitat alteration or loss (sometimes seemingly minor habitat alterations) can result in population extirpations (Hanski *et al.*, 1995). With only one known population, this butterfly is extremely vulnerable to extinction.

D. Inadequacy of existing regulations

There are currently no federal, state or local regulations that can be applied to directly protect the island marble or its habitat.

VI. CONCLUSION

The island marble is limited to one small population with a very limited number of individuals. Its former range and available habitat has been reduced to a fraction of what it once was, and continues to be threatened by development, invasive plants, and the use of herbicides. There are no existing regulations in place to protect these butterflies or their habitat. Without immediate attention this species could go extinct.

For the foregoing reasons outlined in this petition, the Taylor's checkerspot meets four criteria under the Endangered Species Act for consideration as an endangered species: 16 U.S.C. § 1533 (a)(1)(A,B,D,E) (Section 4).

(A) The present or threatened destruction, modification, or curtailment of its habitat or range.
(B) Overutilization for Commercial, Recreational, Scientific, or Educational Purposes
(D) The inadequacy of existing regulatory mechanisms.
(E) Other natural or manmade factors affecting its continued existence.

Due to the threat of extinction, and because of the island marble's small population size, limited distribution, isolation, and the numerous factors threatening the species and its remaining habitat, the **Xerces Society, Center for Biological Diversity, Northwest Ecosystem Alliance, and Friends of the San Juans** formally petition for emergency listing of the island marble butterfly (*Euchloe ausonides insulanus)* as an endangered species. Furthermore, petitioners strongly request the Service to use their authority to establish Critical Habitat based on the facts presented to prevent further decline of this vulnerable butterfly species.

VII. REFERENCES CITED

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Personal Communication

John Fleckenstein, Zoologist, Washington Natural Heritage Program, Asset Management and Protection Division