

April 13, 2006

Ken Berg, Manager
Western Washington Fish and Wildlife Office
U.S. Fish and Wildlife Service
510 Desmond Drive, SE., Suite 102
Lacey, WA 98503

Re: Xerces Society Comments on the 90-Day Finding for a Petition to List the Island Marble Butterfly as Threatened or Endangered; Federal Register: February 13, 2006 (Volume 71, Number 29)

Dear Mr. Berg:

The following pages contain comments submitted by Scott Hoffman Black and Mace Vaughan on behalf the Xerces Society for Invertebrate Conservation.

The Xerces Society is a non-profit, science-based, conservation organization with its principle place of business in Portland, Oregon. The Xerces Society is dedicated to protecting biological diversity through the study and conservation of invertebrates. The Xerces Society has over 5000 members living throughout the US and in several other countries. Scott Hoffman Black (Executive Director) and Mace Vaughan (Conservation Director) have extensive experience with endangered butterfly management and have direct experience with the life history, threats and management issues related to the Island Marble butterfly (*Euchloe ausonides insulanus*).

We are pleased with the positive 90-day finding for the Island Marble. The Island Marble meets all five criteria under the Endangered Species Act for consideration as an endangered species 16 U.S.C. § 1533 (a)(1)(A,B,C,D,E) (Section 4) and therefore should be listed under the ESA.

We identified 15 distinct threats to the Island Marble. These include: Improper prairie management; Introduced invasive species; Housing / urban development; Isolation / fragmentation; Road development / maintenance; Storm tides; Field research activities; Recreation; Over-collecting; Predators; Parasites; Succession to native woody plants; Small population size / low genetic variability; Pesticide use; and Deer and rabbits.

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

Xerces Society Comments on the 90-Day Finding for a Petition to List the Island Marble Butterfly as Threatened or Endangered; Federal Register: February 13, 2006 (Volume 71, Number 29)

Thank you for the opportunity to provide these comments. If you have questions please do not hesitate to contact Scott Hoffman Black at 503-449-3792.

Sincerely,

Scott Hoffman Black

Mace Vaughan

cc. Ann Potter
Robert Michael Pyle
James Miskelly
Scott McCarthy

Ted Thomas
John Fleckenstein
Stephanie Buffum Field

**Comments on the 90-Day Finding for a Petition to List the
Island Marble Butterfly as Threatened or Endangered;
Federal Register: February 13, 2006 (Volume 71, Number 29)**

We are pleased with the positive 90-day finding for the Island Marble butterfly (*Euchloe ausonides insulanus*). On the following pages we provide ample evidence to support its listing as an endangered species. Section 4(a)(1) of the Endangered Species Act directs the US Fish and Wildlife Service to determine the status of species with respect to the following five factors:

- A. The present or threatened destruction, modification, or curtailment of habitat or range;
- B. Overutilization for commercial, recreational, scientific, or educational purposes;
- C. Disease or predation;
- D. Inadequacy of existing regulatory mechanisms; and
- E. Other natural or man-made factors affecting the continued existence of a species.

We identified 15 distinct threats to the Island marble; each threat is described below, and is classified according to the five factors listed above.

In 2005, two hundred twenty-five surveys were conducted at 110 potential Island Marble sites throughout the Puget Sound region by staff from the Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Washington Department of Natural Resources, the Xerces Society, and local volunteers (Miskelly 2005). As a result of these searches, Island Marble butterflies were found at eleven new sites at three locations, although none of the sites had more than five individuals (Miskelly 2005). The vast majority of the butterflies – and the only viable populations - are located at San Juan Island Historic Park-American Camp. Miskelly (2005) suggests that the three satellite populations found in 2005 may not be self-sustaining, and that conservation of the Island Marble is largely dependent on having a viable population at American Camp.

The majority of new sites were found on private lands and therefore face many potential threats. San Juan Island, where most of the butterflies have been found, has the largest and fastest growing human population in the San Juan archipelago. Moreover, San Juan Island National Historic Park-American Camp, which supports the only viable population of Island Marble butterflies, is ringed with private housing developments, and roads and paths are encroaching upon its open spaces. Management activities at the American Camp pose threats to the butterfly, as well.

Detailed population estimates are not available, but most experts agree that there are likely only several hundred butterflies distributed across all of the extant sites. Estimates of total abundance at American Camp are between 200 and 800 individuals based on both relative abundance surveys and numerous field observations conducted in the 2004 and 2005 flight season (Lambert 2005).

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

Improper prairie management

Management practices to maintain native prairie composition and structure require proper timing and technique to achieve the desired results: restored native prairie plant community and a thriving population of Island Marble butterfly. Although certain techniques can be useful in restoring native prairie plants, if applied in the wrong way or at the wrong time they can be detrimental to restoring native prairie animals, such as the Island Marble. Improper management of Island Marble sites has occurred in the recent past and may occur again.

Shunning the advice of Island Marble experts, staff at the San Juan Island National Historic Park-American Camp sprayed herbicide on over five acres within the Park as part of a prairie-restoration project in the summer of 2005. Park staff were told there were larvae at the site before they applied the herbicide but applied it anyway. This herbicide use devastated core habitat for the Island Marble butterfly and likely killed dozens of larvae feeding on plants at the site. They then followed the herbicide treatment with a controlled burn, again without consulting any biologists familiar with the butterfly. (*The Xerces Society submits the attached July 29, 2005 letter from the Xerces Society to Peter Dederich, Superintendent, San Juan Island NHP regarding this matter into the public record*).

Managing habitat for an endangered species is complex and Island Marble, with their current small populations, may be particularly susceptible to management practices at American Camp. As shown above, methods currently used to maintain and restore plant communities can negatively affect Island Marble and its habitat. Other habitat restoration methods also pose problems, unless very carefully employed. For example, mowing likely kills some sessile larvae or pupae, and hand-pulling of invasive plants may trample eggs, larvae, or pupae (Erhardt, 1985).

Fire also may pose a danger to Island Marble larvae (Dana, 1991; Schultz and Crone 1998). Although prairies and Island Marble evolved with fire, fuel loads are significantly greater now than they were historically, resulting in more intense and larger fires that can kill Island Marble, larvae, pupae, or adults (Dana, 1991). In February 2005 the San Juan Island National Historical Park *Fire Management Plan –Environmental Assessment 2005* was released but it includes little discussion of the Island Marble. Island Marble biologists were not consulted as the plan was developed. Controlled burns implemented under this *Fire Management Plan* may have a strongly negative impact on Island Marble sites.

On private land the Island Marble is also threatened by intentional or unintentional management practices including mowing, cultivation and removal of host plants (Miskelly 2005).

Introduced invasive species

Invasion and dominance of native grasslands by exotic plants is a common issue that threatens grassland butterflies (Warren, 1993; Schultz, 1998). Invasive species dramatically change the

structure of prairies, often forming tall, dense patches that shade out the natives, and compete for water and nutrients.

Housing / urban development

Permanent loss of habitat through conversion to urban and residential development has been identified as the single largest threat to the prairies in the western US. San Juan Island, where most of the Island Marble butterflies have been found, has the largest and fastest growing human population in the San Juan archipelago. Miskelly (2005) identified destruction of habitat associated with development and landscaping as a threat to sites on private land.

Isolation / fragmentation

With less than 1000 individuals located in one small geographic area, the Island Marble is likely experiencing reduced gene flow among populations, and increased susceptibility to local population extirpation caused by environmental catastrophes.

Road development / maintenance

Several of the sites where Island Marble is found are adjacent to roads. Routine roadside maintenance generally involves herbicide application or mowing, which can reduce or even eliminate populations of the Island Marble butterfly. Roadside mowing cut mustard plants, some which were occupied by Island Marble, at Eagle cove development, Old Johnson Road, and Fisherman Bay Tombolo sites in 2005 (Miskelly 2005). Road redevelopment projects at American Camp could also have a negative impact on this butterfly if not carefully designed and managed.

Storm Tides

Because several of the sites are coastal, storm tides that flood habitat are a threat (Miskelly 2005). In early 2006 a very large tide occurred that impacted at least one Island Marble site (Ann Potter personal communication). A large winter storm could have severe consequences on a small population such as this one.

Overutilization for commercial, recreational, scientific, or educational purposes

Field research activities

Increasing our knowledge of prairie ecology is vital to successful butterfly conservation. However, research itself can be a threat. Extensive research activities may detrimentally impact habitat, and more directly, eggs, larvae and pupae (Ehrlich and Murphy 1987). Increased foot traffic in fragile habitats may result in crushing butterfly larvae and collection of specimens may further reduce small population sizes. Miskelly (2005) identified research as a potential threat at the third lagoon site at American Camp.

Recreation

According to the Park Service, more than 250,000 people visit the San Juan Island National Historical Park (American and English Camps) annually. Areas inhabited by Island Marble may be impacted by many recreation activities. Hikers, cyclists and horses may crush or uproot

plants or kill butterfly larvae, seeds of invasive species may be spread by vehicle tires (including bikes) and horse manure.

Over-collecting

Rare butterflies are often the target of collectors, and the rarity of the Island Marble makes it vulnerable to poaching. Collecting of Island Marble could significantly reduce production of offspring. Butterflies outside American Camp are likely more susceptible to over collecting (Miskelly 2005) than those inside the Park.

Disease or Predation

Predators

Predation is a part of nature. These forces may become a threat, however, when populations are small, (as with Island Marble) and the loss of even a very few individuals may affect the viability of the population.

Parasites

Similar to predator threat, butterfly parasitoids are a part of the natural environment. As populations of Island Marble become very small, the effect of these factors can reduce the viability of small populations, making them increasingly vulnerable to local extirpation.

The Inadequacy of Existing Regulatory Mechanisms

There are currently no federal, state or local regulations that can be applied to directly protect the Island Marble or its habitat. Even in the most protected habitat (San Juan Island National Historic Park) there are no regulations that protect this species. As stated above, management at the park has negatively impacted both butterfly larvae and the butterfly's habitat. Controlled burns implemented under the San Juan Island National Historical Park *Fire Management Plan –Environmental Assessment* 2005 may also have a negative impact on Island Marble sites.

Other Natural or Manmade Factors Affecting Continued Existence

Succession to native woody plants

Among the most urgent threats to western prairies, succession to native shrub lands or forest occurs when the historical prairie disturbance regime has been suppressed. Prairies in the southern Puget Sound of Washington have been lost at an average rate of approximately 100 acres per year since the 1850s due to the rapid conversion of grassland to Douglas-fir forest (Kruckeberg, 1991). In the San Juan archipelago the coastal grassland communities are being similarly encroached by Douglas-fir, rose, and snowberry. Succession of sites to woody plants will lead to a loss of butterflies at these sites.

Small population size / low genetic variability

A frequent effect of fragmentation and isolation, small populations may be at risk of inbreeding depression; as patches get smaller and more separated from adjacent populations, the local pool of genetic material shrinks, potentially resulting in a loss of resilience to environmental change. Small populations are also at risk of extirpation due to stochastic events, such as unusually wet or dry years, or fire. With the majority of the Island Marble population in a small geographic area and a known population of less than 1000 individuals this butterfly is extremely vulnerable to extinction due to adverse weather or other natural causes.

Pesticide use

Herbicides and insecticides, if not carefully applied, may have direct impacts on Island Marble, or may have indirect impacts through damage to host plants; in either case, the effects of improperly applied pesticides may further reduce population size. As stated above, herbicide use had a direct impact on both Island Marble larvae and habitat

Btk (*Bacillus thuringiensis* var. *kurstaki*), a Lepidoptera-specific larvicide, has become the pesticide of choice to treat defoliators such as the Asian gypsy moth (Wagner and Miller, 1995). Btk is a bacterium, which 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). As a result, aerially spraying even relatively small areas with Btk can have significant adverse effects on nearby Island Marble populations.

In addition, the application of Malathion and other mosquito adulticides may be a problem as spraying programs aimed at curtailing the spread of West Nile virus increase.

Deer and Rabbits

Deer browsing is a potential threat at all of the known Island Marble sites. Rabbit grazing is a potential threat at sites in and around American Camp (Miskelly 2005) where these introduced animals have created an extensive system of warrens and greatly disturbed and denuded the surrounding vegetation.

Conclusion

The Island Marble deserves protection under the federal Endangered Species Act. The Island Marble meets all five listing criteria under the Endangered Species Act: 16 U.S.C. § 1533 (a)(1)(A,B,C,D,E) (Section 4). If federal protection is not established, we believe there is a significant potential for this butterfly to go extinct.

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Personal Communication

Ann Potter, April 13, 2006; Washington Department of Fish and Wildlife