

A Conservation Agreement and Strategy
for the
Island Marble Butterfly
(*Euchloe ausonides insulanus* Guppy & Shepard)
Final

Between the
San Juan Island National Historical Park, National Park Service

And the
U.S. Fish and Wildlife Service

October 31, 2006

Prepared with the assistance of
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Objective

The U.S. Fish and Wildlife Service (FWS) and the National Park Service (NPS) enter into this agreement for the purpose(s) of helping ensure the long-term continued existence of the Island Marble butterfly and contributing to its recovery. This agreement lays out general guidelines for a broad spectrum of activities at American Camp, including management and restoration of the grassland ecosystem there as a natural component of the cultural/historic landscape. American Camp is one of two administrative units of San Juan Island National Historical Park (SAJH) and as such, is part of a National Historic Landmark and listed on the National Register of Historic Places. These guidelines and conservation measures will be consistent with the goal of conserving the Island Marble butterfly and minimizing potential negative effects to the Island Marble from National Park Service activities. This agreement is

based on our best understanding of this taxon's biology to date, and on our experience with previous management efforts.

The activities considered in this agreement encompass management actions that will modify the grassland ecosystem, as well as certain routine or recurring activities that have potential to affect the butterfly. These actions include: (1) the reduction or elimination of non-native European rabbits; (2) a major road relocation project on the Cattle Point Road, as well as ongoing maintenance on existing roads; (3) removal of creosoted logs from Island Marble lagoon habitat along the north shore of American Camp, at Griffin Bay; (4) issuance of special use permits at American Camp for certain visitor activities; (5) continued cultural and natural landscape restoration activities at American Camp (e.g., prescribed burning, mechanical removal of certain invasive plants, herbiciding, and planting of native species); and (6) the eventual construction of a new visitor center. The general guidelines provided within this document will reduce the potential effects to the Island Marble from these activities and, in some instances, should actually improve habitat for the butterfly over the long-term. These conservation measures are based on information and experience gained from past experimental work conducted at American Camp and from research findings from the restoration of grassland habitat in western Washington.

Authorities

This Agreement is entered into under the following authorities:

The National Park Service is authorized by the National Park Service Organic Act of 1916, 16 U.S.C. 1(1988); Economy Act of 1932, 31 U.S.C. 1535 (1988); Fish and Wildlife Coordination Act, 72 Stat. 563, 16 U.S.C. 661 (1988) to enter into this agreement.

The U.S. Fish and Wildlife Service is authorized under the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531-1548) (1988); Fish and Wildlife Conservation Act of 1980, 16 U.S.C. 2912 (1988); Fish and Wildlife Act of 1956, 16 U.S.C. 742f (1988); and the Fish and Wildlife Coordination Act, 16 U.S.C. 661 (1988) to enter into this Conservation Agreement.

Section 2 of the Act states that encouraging interested parties, through a system of incentives, to develop and maintain conservation programs is a key to safeguarding the Nation's fish, wildlife and plants. The purpose of Section 2 states that the Act provides a means whereby the ecosystems upon which rare and threatened species depend may be conserved. Section 7 of the Act requires the Service to review programs that it administers and to utilize such programs in furtherance of the purposes of the Act, on Federal Lands and with Federal partners. By entering into this Conservation Agreement, the Service is utilizing its Conservation Programs to further the conservation of the Nation's fish, wildlife and plants.

This agreement has been designed to serve as a tool for guiding management of the grassland ecosystem found on National Park Service lands on San Juan Island. The principles of conservation applied here could also be implemented on other properties, including private lands where one of the goals of the landowner would be to encourage the presence of Island Marble butterflies and conserve the subspecies' habitat.

Background and Purpose

The National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education and inspiration of this and future generations. More than 84 million acres in 390 park units make up the national park system. The NPS cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world. NPS policies

promote the conservation of all federally listed threatened, endangered or candidate species within park boundaries. Any actions identified in this agreement must be consistent with NPS policies and with plans for managing the cultural and historical landscapes of San Juan Island National Historical Park, which are part of the primary resources identified in the park's enabling legislation of 1966.

The FWS is the Federal land management and regulatory agency responsible for implementation of the Endangered Species Act and coordination with other Federal and State agencies in the national effort to prevent the extinction of species. The FWS is responsible for the publication of the plant and animal candidate list and has a national candidate conservation program. FWS field offices have also developed lists of species of concern to account for species with a high conservation priority; the Island Marble butterfly is included on this list for western Washington.

The cooperators (NPS and FWS) seek to improve efficiency by combining our efforts, to foster better working relationships and promote the conservation of species, and thereby encourage conservation of national biological diversity. In consideration of the above premises, the parties agree to the following principles:

The cooperators shall:

1. Work together and participate in the conservation of the Island Marble butterfly and its habitat through this Conservation Agreement for the Island Marble butterfly (*Euchloe ausonides insulanus*).
2. Use appropriate procedures to ensure adherence to all requirements in this conservation agreement for the Island Marble butterfly.
3. Meet regularly, at least twice each year, to review the proposed actions for any given year and review and evaluate the noteworthy successes of the year.

Introduction

The Island Marble is a recently described (Guppy & Shepard, 2001), highly disjunct, and distinct subspecific population of the Large (i.e., Creamy) Marble (*Euchloe ausonides*) (Pyle, 2002). While the Large Marble has a broad range across the West and is considered a common butterfly over much of that range, the Island Marble is extremely restricted and isolated in occurrence, and has been petitioned by conservation organizations to be added to the list of threatened and endangered species. The subspecies currently has no Federal conservation status. This taxon was hitherto known solely from Vancouver Island and Gabriola Island in the Gulf of Georgia, in British Columbia. Only fourteen specimens are known from collections, and evidently live individuals were last seen in 1908. In 1998, John Fleckenstein of the Washington Department of Natural Resources, taking part in grassland butterfly studies long considered a high priority for Washington butterfly conservation (Pyle, 1982, 1989), collected a male and female specimen of white butterflies at American Camp, San Juan Island National Historic Park (SAJH). These turned out to be marbled wings (*Euchloe*), to the surprise of the lepidopterological community (Black & Vaughan, 2004). Since they resembled the 14 historic specimens from western British Columbia rather than eastern Washington Large Marbles, Guppy and Shepard (2001) assigned them to the Vancouver Island deme previously considered extinct, and for the first time described that taxon, naming it *Euchloe ausonides insulanus*. Subsequent surveys by Ann Potter, John Fleckenstein, James Miskelly, Robert Pyle and others have found the butterfly elsewhere on San Juan Island and in a few locations on Lopez Island. More than 150 distinct localities were surveyed, including potential grassland habitat on more than 16 islands and within 6 counties of Washington. As far as is known, just San Juan and Lopez islands comprise this taxon's sole global occurrence, making it one of the most restricted U. S. endemics.

The Island Marble is currently known to occur chiefly in upland grassland at American Camp, SAJH, with a satellite sub-population around the eastern shore of SAJH, and to a lesser extent at other upland sites on San Juan and Lopez islands. Extensive surveys have been

conducted by Miskelly, Fleckenstein, Potter, Pyle, and others, and autecological/synecological studies by Amy Lambert (University of Washington Ph.D. candidate, internal NPS reports). While the bay subpopulation utilizes the native *Lepidium* peppergrass, the grassland/upland subpopulations are so far known to feed only on two non-native, invasive mustards, field mustard (*Brassica campestris*) and tall, tumble mustard (*Sisymbrium altissimum*), with some oviposition on kale (Miskelly, pers. comm., 2006). This situation has created an enigmatic management challenge whereby a species of high concern depends upon non-native species whose eradication in native-dominated habitats, if not a priority, would be otherwise desirable. This case is analogous to the West Coast population of migratory Monarch butterflies whose successful overwintering, since the fragmentation of their aboriginal forests, depends upon groves of non-native, invasive *Eucalyptus* trees. The long-term well-being of the Island Marble has concerned both the Washington Department of Fish and Wildlife and Washington Department of Natural Resources Natural Heritage Division and private groups including the Xerces Society (XS) and the Center for Biological Diversity (CBD) and has triggered a federal status review for the Island Marble (FWS 2006, XS 2005).

Biological and historical perspective of American Camp

Due to their location in the rain shadow of the Olympic Mountains, the San Juan and Gulf Islands of British Columbia in the Gulf of Georgia support dry grassland communities rare in western Washington. While their overall species diversity is not high due to island effects, their diversity to area ratio is high as demonstrated by the butterflies (Pyle, 1982) and numerous species of plants found there but otherwise uncommon in western Washington. American Camp contains one of the largest grassland expanses in the San Juan and Gulf Island archipelago. However, during the past 150 years, a number of influences have degraded the American Camp grasslands from their aboriginal and potential condition, including ground disturbance from agriculture; introduction of non-native species such as European rabbits, pasture grasses, and a

long list of noxious weeds; and the invasion of trees and woody shrubs resulting from the exclusion of fire.

Proposed Management Actions within American Camp

It is the National Park Service's intent to preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education and inspiration of this and future generations. In meeting this challenge the NPS has the obligation to implement ongoing management actions that are intrinsically part of NPS management. At San Juan Island National Historical Park, these include road and trail maintenance and relocation, preservation of significant cultural resources, management of certain types of visitor activities through special use permits, management of non-native species (both plant and animal) and facility management.

Road and trail maintenance activities include mowing and the occasional, limited application of herbicide to control invasive plants. Various project alternatives for the Cattle Point road relocation project in American Camp range from minor modifications to the existing road, including construction of various tunnels to a complete realignment of more than one mile of road. The impacts of this road construction could result in up to 13 acres of temporary loss of Island Marble butterfly habitat due to road construction activities and clearing, removing the Island Marble's larval food plants and adult nectar sources. Long-term, approximately 3 acres of permanent habitat would be lost.

The NPS is planning to restore the former road bed using native grasses and forbs. Because the preferred larval food is found near the existing road, it is likely the restored area would include a component of the preferred larval food plants, which would provide long-term

benefits to the Island Marble. The former road site would likely provide similar vegetation to that of the area of the relocated road.

The historic redoubt and site of the Belle Vue Sheep Farm are significant cultural resources located on the American Camp prairie. Future actions to stabilize and preserve these resources are possible and could be expected to involve subsurface excavation and surface clearing with recurring grounds maintenance. Native plantings and ramps or boardwalks have been suggested as possible treatments for the redoubt; these would be carefully planned and coordinated. The total area involved is small, about two acres, and impacts to Island Marble habitat from any proposed action would be highly localized. As part of the consultation process required for any actions proposed to affect these cultural resources (36 CFR 800 and NEPA), FWS will be identified as a concerned party in addressing the effects of these actions.

Special use permits are used to regulate certain types of visitor activities in the park, such as weddings, large group gatherings, horseback riding, etc. Park staff review special use permit applications to determine whether they are consistent with NPS regulations as well as protection of the resource. As part of this agreement, the review of these permits will include specific consideration of Island Marble habitat and ecology; permits will not be issued for activities that are likely to negatively impact the butterfly. One example would be wedding receptions in important marble habitat, which have the potential to trample host plants, larvae or pupae.

The National Park Service has programs in place (and is developing additional programs) to restore the American Camp grasslands to a more native ecological condition, as part of what can be more broadly termed, "Cultural Landscape Restoration." The tools being used to achieve restoration goals include prescribed burning, mechanical and/or chemical control of invasive plants (including certain woody invasives), and planting of native grasses and forbs. However, the nearly unique presence of the Island Marble, and its dependence on non-native hostplants, creates distinct management challenges. Although early efforts in this direction inspired controversy, they also spurred dialogue among interested parties. It was first feared that

herbicide and prescribed fire treatment of an experimental plot south of the redoubt in 2005 had caused significant mortality of marble eggs and larvae. This may have been the case. However, 2006 surveys revealed abundant regrowth of the host mustards, and prolific visitation of these mustards by adult Island Marbles. In the absence of experimental population assessment before and after, the exact response cannot be certain. The net effect can only be guessed. However, it seems likely that the treatment resulted both in initial mortality and subsequent strengthening of the population. This management exercise usefully demonstrated that the potential clearly exists for a long-term, positive response from restoration work with the understanding that short-term negative effects may result.

It is expected that the long-term result of grassland restoration will mean stronger Island Marble populations, due to an increase in native nectar sources and a reduction of competing weedy vegetation and shrubby succession, as long as the host mustards remain robust. On the other hand, inadvertent mortality of marbles is a real risk, and it should be recognized first that some level of mortality of individual butterflies will probably occur; and second, that mortality can be minimized through the application of the guidelines contained in this agreement.

Additional restoration actions include rabbit control. While the disturbance caused by rabbits in small numbers might prove beneficial to the non-native mustard hostplants, the virtual absence of plants in the heavily populated rabbit warrens argues against the presence of rabbits as a positive factor. Rabbit removal, a major goal for grassland restoration, should be a very good thing for the Island Marble in the mid- to long-term. Since the densely populated rabbit areas do not overlap much with Island Marble strongholds, rabbit management should be able to proceed with little or no concern for causing marble mortality. The rabbit warrens, once rabbit-free, might well prove highly suitable for mustard expansion along with native grasses and forbs.

The following conservation measures have been identified as actions that will likely protect and improve Island Marble habitat while simultaneously offering strong protection to the

Island Marble. These conservation measures have been designed to minimize or avoid effects to the Island Marble butterfly at times when the NPS is implementing activities that may affect the species.

The FWS agrees to:

1. Coordinate, consult and provide technical assistance to the NPS on actions that are proposed to conserve and minimize threats to the Island Marble butterfly.
2. Review and provide technical assistance to the NPS on management actions that are proposed for the American Camp unit of SAJH to ensure that actions will not adversely affect the Island Marble butterfly or its immature life forms.
3. Assist with planning actions to be implemented on the ground. Coordinate with NPS on developing monitoring and reporting objectives.
4. Assist the NPS with developing criteria that would trigger changes to their management if specific management goals were not being met.

The NPS agrees to implement the following conservation measures in regards to their management actions to minimize effect to Island Marble butterflies.

1. Restore native grassland ecosystem components of the cultural landscape at American Camp through active management, including the use of prescribed fire. The NPS will restore up to 10 acres of grassland per year to create a mosaic of early seral restoration units, for example a matrix of burn/mow/spray/control in different proportions and conditions. Individual management units will be two acres or less in size. NPS staff and cooperators will avoid and minimize prescribed fire treatments beyond the prescription boundary for the action. Staff will not construct fire breaks in marble habitat and will take care not to trample host plants while applying a wet line or preparing the area for prescribed fire.

2. Where NPS actions are proposed that would cause soil disturbance, conduct surveys of Island Marble habitat for the presence of host mustards. Any ground disturbing activities will be positioned where host mustards are absent or sparse. Care will be taken to avoid habitat with dense stands of *Sisymbrium* or *Brassica* and high numbers of marble sightings. This will also apply to marble nectar locations as well as larval hostplant incidence.
3. For proposed NPS actions in Island Marble butterfly habitat, survey any larval mustard plants that are present for the presence of eggs and larvae of Island Marbles and transplant any immatures that are found to host plants outside the activity area. If adults are observed nectaring in the zone, adults should be netted and transplanted to areas away from the ground disturbance.
4. For proposed NPS actions in Island Marble butterfly habitat, herbicide application will occur according to label instructions and appropriate wind conditions to avoid drift to areas outside the treatment area.
5. For proposed NPS actions in Island Marble butterfly habitat, all vegetation treatments (ie., mowing, herbiciding, and burning) will occur in the fall, when pupation will have occurred. Actions will not occur in the spring, when most immature forms of the Island Marble butterfly will be present. Pupation often takes place some distance from the hostplant, so some proportion of larvae present will have left the treatment area.
6. Develop a monitoring plan to assess how and whether host plants and adult Marbles are responding to the management actions that are being implemented. All management actions should have pre-treatment and post-treatment assessments for Island Marble butterflies, eggs and larvae.

7. Assess the presence of other butterfly species, and inventory their associated host plants, prior to any restoration action. This applies particularly to the Valley Silverspot (*Speyeria zerene bremneri*) and its host violets (*Viola adunca*) among the American Camp grasslands. (See Pyle, 2004 for existing management recommendations regarding several species of concern in the park.)
8. Wherever mustard plants are present in sufficient numbers to provide habitat, avoid management actions that would damage them. This will allow for Island Marble butterfly dispersal and expansion of the core population found at American Camp.

In addition to the actions proposed above, the signatory and supporting parties agree to encourage:

1. Continued research on the autecology and synecology of the Island Marble and its supportive plant communities that has been undertaken by Amy Lambert (2005). This research will contribute to our understanding of Island Marble preference for native larval host plants that are no longer found, or are now uncommon on NPS lands.
2. Initiation of population studies using mark-release-recapture methods. These studies will result in a more reliable estimate of the core population of Island Marbles at American Camp. Estimates of the organism's population have varied markedly and mark-release-recapture studies on a relatively robust species such as this, competently carried out, should have little deleterious effect on individuals and none on the population overall. Paul Ehrlich (1965) first developed these techniques and repeatedly demonstrated their value in population studies of rare butterfly species.

3. Continued surveys and monitoring efforts elsewhere in the park, the island, and the archipelago, such as those undertaken by WDFW, WDNR and the FWS in 2005 and 2006 to evaluate the movement of Island Marble butterflies to patches of host plants.
4. Careful monitoring of marbles and their indigenous peppergrass hostplant (*Lepidium virginicum* var. *menziesii*) along the bayside lagoons downslope of the grassland habitat in American Camp. At Old Town Lagoon, the *Lepidium* host underwent explosive germination in the spring of 2006 following overwash flooding during February 2006. Survival and response of marbles to such fluctuations and flooding should be determined.
5. Genetic analysis of the Island Marble butterfly's makeup by comparing its DNA material with related but distinct species and subspecies of marbles. Compare the genetic material of Island Marble butterfly with large marble, creamy marble, and other species of marbles, if specimens are available for analysis.
6. Coordination with local landowners to develop and manage Island Marble butterfly habitat on private lands. The agencies agree to work with landowners through local extension services and other conservation organizations to promote the establishment of mustards and associated nectar plants to be maintained on private lands and to educate landowners about what the occurrence of Island Marble butterflies on their lands might mean for their land use practices. The agencies also agree to encourage landowners to provide habitat by planting, or permitting to grow, an array of mustards in waste areas and along field or roadside edges, and taking part in hostplant suitability experiments if they express interest. Education, outreach, and voluntary cooperation will be crucial approaches in trying to get private landowners to supplement the NPS's major role in conserving this subspecies of concern.
7. Continued assessment of the distribution of beach strand populations of Island Marble

butterflies. Given the possibility that this taxon originated among strand communities-- which were much more extensive during eras of lower sea level--every effort should be made to ascertain the overall range of the native Puget Sound Peppergrass (*Lepidium*) hostplant on beach strand plant communities around Puget Sound. The plant's propagation, management for increase, and potential introduction to suitable sites should also be considered, in the hope of reducing the Island Marble's dependency upon non-native, invasive species of mustards.

8. Participation and full and open communication among all concerned parties about the planning, execution, results, and monitoring of all restoration activities and any proposed adaptive management practices. Communication modes include regular teleconferences (as often as weekly during season), supplemented by periodic face-to-face and field meetings of involved resource agency and organization professionals and volunteers.

National Environmental Policy Act (NEPA) and
National Historic Preservation Act (NHPA) Compliance

Signing of this agreement is covered under authorities outlined above. We anticipate that any survey, collection, or research activities for implementation and maintenance of the Conservation Agreement will not entail significant federal actions under either NEPA or NHPA and that a categorical exclusion will adequately fulfill the environmental and cultural compliance obligations for such negligibly-disturbing activities. All other actions will be evaluated prior to implementation and will comply with NEPA and NHPA regulations. Some of the actions that may require NEPA and NHPA compliance outside of a categorical exclusion include major infrastructure projects such as a new visitor center or the Cattle Point Road relocation.

Federal Agency Compliance

During the performance of this agreement, the participants agree to abide by the terms of Executive Order 11246 on non-discrimination and will not discriminate against any person because of race, color, religion, sex, or national origin.

Conclusion

An understanding of the proposed activities and corresponding conservation measures to avoid and minimize effects to the Island Marble butterfly known from San Juan and Lopez islands and the conditions upon which they are based will promote cooperation and conservation and will help to avoid confusion. Under this agreement and its identified conservation measures and what will be learned from its enactment, the Island Marble should have an excellent chance at survival and even increase. We recognize that the unusual necessity of managing around, with, and even for two non-native, invasive species of plants that would normally be a target for removal on an NPS unit may limit our ability for restoration to pristine prairie conditions; and that these plants will probably remain important to the Island Marble's survival into the foreseeable future. However, implementation of these conservation measures should ensure the continued existence of the Island Marble butterfly at American Camp.

It is mutually agreed and understood by each party that:

Specific work projects or activities that involve the transfer of funds, services or property among the cooperators to this Conservation Agreement will require the execution of separate agreements or contracts, contingent upon the availability of funds as appropriated by Congress. Subsequent agreements involving the transfer of funds, services or property among the parties to this Conservation Agreement must comply with all applicable statutes and regulations, including those statutes and regulations applicable to procurement activities, and must be independently authorized by appropriate statutory authority.

This Conservation Agreement in no way restricts the cooperators from participating in similar activities or arrangements with other public or private agencies, organizations or individuals.

Nothing in this Conservation Agreement shall obligate the cooperators to expend appropriations or to enter into any contract or other obligations.

This Conservation Agreement may be modified or amended upon written request of any party hereto and the subsequent written concurrence of all the parties. Cooperator participation in the Conservation Agreement may be terminated with a 60-day written notice from any party to the other cooperators. Unless terminated under the terms of this paragraph, this Conservation Agreement will remain in effect until September 30, 2016.

FOR THE U.S. FISH AND WILDLIFE SERVICE:

By: Signature _____ **Date:** _____

Printed Name and Title: Ren Lohofener, Regional Director, Region 1, U.S. Fish and Wildlife Service

FOR THE NATIONAL PARK SERVICE:

By: Signature _____ **Date:** _____

Printed Name and Title: Jonathan B. Jarvis, Regional Director, Pacific West Region, National Park Service

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