SPECIES FACT SHEET

Scientific Name: *Eanus hatchi*
Common Name: Hatch's Click Beetle
Phylum: Arthropoda
Class: Insecta
Order: Coleoptera
Family: Elateridae
Subfamily: Dendrometrinae

Conservation Status:
Global Status (1985): G2?
National Status (United States): NNR
State Status (WA): S1
IUCN Red List Category: NE - Not evaluated
(NatureServe 2008)

Technical Description:
Characteristic of the click beetle family (Elateridae), this species is elongate in shape, with the pronotum pointed on the posterior corners. The prosternum has a spinelike process that fits into a grove in the mesosternum, and the prothorax and mesothorax are loosely joined, enabling adults to arch, "click," and flip over when they are upside down. This species is relatively small (7-9 mm, 0.28-0.35 in.) and has a metallic-bronze color which may reflect bright green or purple (*reviewed in* Martin 2003). The lack of flattening is one of the key field characters which distinguishes this species from other elaterids (Bergdahl 2009, *pers. comm.*).

Life History:
Adults are most active in early spring, typically in April and May, although they may be encountered in June as well, particularly at mid-elevation (e.g. 450 m (1476 ft.)) bogs (Bergdahl 2009, *pers. comm.*). Although the larvae probably take multiple years to develop (Johnson 2008, *pers. comm.*), little is known about the seasonal activity of the larvae. The feeding habits of this species are unknown, but adults likely visit flowers and feed on honey dew, pollen, nectar, and floral structures. Extrafloral nectaries, including the exudates of new conifer growth, are another probable adult food source. Larvae probably predate on small insects (Johnson 2008, *pers. comm.*).

Range, Distribution, and Abundance:
Washington: This species is endemic to the Puget Sound area of Washington. It was historically known from *Sphagnum* bogs in Snohomish and King counties, although the species may be extirpated at

both of the Snohomish County sites (Chase Lake and Carkeek Park) in which case the only extant populations would be restricted to King County (Johnson 1984 and Bergdahl 2009, *pers. comm.*). *Sphagnum* habitat has been heavily altered by urban development at both sites, and survey attempts were not successful at locating this species or even *Sphagnum* habitat at the Carkeek Park site (Bergdahl 2008, *pers. comm.*). Records in King County are from three sites (Lake Marie, Snoqualmie Bog and Kings Lake Bog), although more recent survey work in the region by James Bergdahl revealed additional populations in southern King County at undisclosed localities (Bergdahl 2008, *pers. comm.*).

Oregon: This species has not been found in Oregon, although there is the possibility that it occurs in suitable habitat in the northwest part of the state (Bergdahl 2009, *pers. comm.*).

Federal Land: There are no known sites on of this species on federal land. Due to proximity of sites and habitat, the species may occur on the Mt. Baker/Snoqualmie National Forest (Bergdahl 2009, *pers. comm.*).

Habitat Associations:
This species is found in low to mid elevation eutrophic *Sphagnum* bogs in forested areas, usually below 305 m (1000 ft.). Although this species has been found in relatively dry bogs, it is unknown if it prefers dryer habitats (J. Bergdahl *in* Martin 2003). Adults have been collected on low, floating mats of vegetation (Lane 1938), and may prefer the interface between *Sphagnum* mats and sedges (*reviewed in* Martin 2003). Additionally, adults spend at least some of their time higher up in bog vegetation, and tend to be found in association with *Ledum groenlandicum* and other flowering shrubs (*reviewed in* Martin 2003). The species has also been found on the foliage of hemlock (*Tsuga* spp.) (P. Johnson *in* Martin 2003). Larvae have been encountered above the water line near bog margins (Lane 1971), where they may inhabit decaying wood (P. Johnson *in* Martin 2003).

Threats:
Patches of suitable habitat are very small within the species' range, and the number of populations of this species has probably declined severely as many low elevation bogs in Washington have been damaged or destroyed. Both urban development and logging threaten this species' habitat by changing the hydrology and water quality of the *Sphagnum* bogs. The species may be extirpated at both of the Snohomish County sites (Chase Lake and Carkeek Park) where *Sphagnum* habitat has been heavily altered or eliminated by urban development (Bergdahl 2008, *pers. comm.*). Insecticide use and trampling by cattle and humans threaten various sites. Global climate change poses a long-term threat to this

species, and over-collecting may also threaten this rare species (Bergdahl 2009, *pers. comm.*).

Conservation Considerations:
Inventory: Survey for new populations in lowland *Sphagnum* bog habitat. This flight-capable species is suspected to be more widespread than King County and to occur at many more bogs (Bergdahl 2008, *pers. comm.*). The main challenge with this species is that the adults are active only during a short period in early spring, which happens to be when few entomologists are in the field collecting insects (Bergdahl 2008, *pers. comm.*). Significant areas should be surveyed during the appropriate survey window (early spring). Among the six species in the *Eanus* genus, *E. hatchi* is the only one found in *Sphagnum* bogs at low elevation (less than 1000 m).

Management: Manage bog habitats to maintain water quality and quantity both at known and potential sites. Avoid application of pesticides or other chemicals in the proximity of such habitat.

Research: Studies designed to answer questions about the life history and ecology of this species are needed.

Version 2:
Prepared by: Sarah Foltz
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Date: May 2009

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Date: June 2009

Final Edits: Rob Huff
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Date: August 2009

Version 1:
Prepared by: John Fleckenstein
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Date: January 2006

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June 2007

ATTACHMENTS:

(1) References
(2) List of pertinent or knowledgeable contacts
(3) Survey Protocol

ATTACHMENT 1: <u>References</u>:

Bergdahl, J.C. 1997. Endemic Sphagnum bog beetles from the Puget Sound Region: Kings Land and Snoqualmie Bogs, King Co., Washington. Unpub report for Northwest Biodiversity Center.

Bergdahl, James. 2008. Personal communication with Sarah Foltz, Xerces Society for Invertebrate Conservation.

Bergdahl, James. 2009. Personal communication with Sarah Foltz, Xerces Society for Invertebrate Conservation.

LaBonte, J.R., D.W. Scott, J.D. McIver, and J.L. Hayes. 2001. Threatened, endangered, and sensitive insects in Eastern Oregon and Washington forests and adjacent lands. Northwest Science. 75:185-198.

Lane, M.C. 1938. A new species of the genus Eanus (Coleoptera Elateridae). Pan-Pacific Entomologist. 14(4): 188-191.

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Johnson, 1984. Letter on file with the Washington Department of Wildlife, Nongame Division.

Johnson, Paul. 2008. Personal communication with Sarah Foltz, Xerces Society for Invertebrate Conservation.

Martin, R. 2003. Analysis Species Assessment:
Hatch's Click Beetle (*Eanus hatchi*). Baker River Terrestrial Working Group Analysis Species. Puget Sound Energy, Inc. Available at: http://www.pse.com/Hydro%20Licensing/baker/reports/TerrestrialWGStudies/T04%20Analysis%20Species/An_Sp_it_Review_HatchsBeetle_RM_Final%20Report_8_24_03.pdf. (Accessed 4 Dec. 2008).

NatureServe. 2008. "*Eanus hatchi*." *NatureServe Explorer: An online encyclopedia of life [web application]*. Feb. 2008. Version 7.0. NatureServe, Arlington, Virginia. 15 Dec. 2008 <http://www.natureserve.org/explorer/>.

U.S. Fish and Wildlife Service. 1989. Endangered and threatened wildlife and plants; animal notice of review. Federal Register, Department of the Interior. 54(4): 554-579.

Washington Department of Fish and Wildlife. 1991. Hatch's click beetle. Available at: http://wdfw.wa.gov/archives/pdf/94025119.pdf. (Accessed 4 Dec. 2008).

ATTACHMENT 2: List of pertinent, knowledgeable contacts:

- James Bergdahl, Conservation Biology Center
- Paul Johnson, Professor of Entomology, Insect Research Collection, South Dakota State University.
- James LaBonte, Plant Division, Oregon Department of Agriculture

ATTACHMENT 3: Survey Protocol

Where:

This species is endemic to the Puget Sound area of Washington. It was historically known from *Sphagnum* bogs in Snohomish and King counties, although the species may be extirpated from both of the Snohomish County sites (Chase Lake and Carkeek Park) in which case the only extant populations would be restricted to King County (Johnson 1984 and Bergdahl 2009, *pers. comm.*). At both Chase Lake and Carkeek Park, the *Sphagnum* habitat has been heavily altered by urban development, and survey attempts at Carkeek Park were not successful at locating *Sphagnum* habitat (Bergdahl 2008, *pers. comm.*). Records in King County are from three sites (Lake Marie, Snoqualmie Bog and Kings Lake Bog), although more recent survey work in the region by James Bergdahl revealed an additional populations in southern King County at undisclosed localities (Bergdahl 2008, *pers. comm.*). This species has not been found in Oregon, although there is the possibility that it lives in suitable habitat in the northwest part of the state (Bergdahl 2008, *pers. comm.*). A flight-capable species, it is suspected to be more widespread than King County and to occur at many more bogs (Bergdahl 2008, *pers. comm.*).

Habitat: This species is found in eutrophic *Sphagnum* bogs in forested areas below 305 m (1000 ft.) Although it has been found in relatively dry bogs, it is unknown if it prefers dryer habitats (J. Bergdahl *in* Martin 2003a). Adults have been collected on low, floating mats of vegetation (Lane 1938), and may prefer the interface between *Sphagnum* mats and sedges (*reviewed in* Martin 2003). Additionally, adults spend at least some of their time highter up in bog vegetation, and tend to be found in

association with *Ledum groenlandicum* and other flowering shrubs (*reviewed in* Martin 2003a). The species has also been found on the foliage of hemlock (*Tsuga* spp.) (P. Johnson *in* Martin 2003). Larvae have been encountered above the water line near bog margins (Lane 1971), where they may inhabit decaying wood (P. Johnson *in* Martin 2003).

When:
Adults have a short activity season in the early spring, and are most active on hot, sunny days. Surveys should be conducted between April and May, on the hottest available days (P. Johnson *in* Martin 2003). At mid-elevation (e.g. 450 m) bogs, this species has been found into June (Bergdahl 2009, *pers. comm.*).

How:
Adults of this species are best captured by sweep netting in clumps of *Ledum* or other flowering shrubs (Martin 2003a). Beating or knocking foliage while holding an umbrella or white sheet underneath can also effectively capture adults. It is possible that larvae may be collected in rotting wood occurring along bog margins above the water line (P. Johnson *in* Martin 2003, Washington Department of Fish and Wildlife 1991).

Adult specimens should be pinned through the anterior portion of the right elytron or preserved in 70% ethyl alcohol. Larvae should be preserved in 70% ethyl alcohol. Collection labels should include the following information: date, time of day, collector, detailed locality (including geographical coordinates, mileage from named location, elevation, etc.), and detailed habitat data (e.g. temperature, vegetation composition, water quality characteristics, etc.). Complete determination labels include the species name, sex (if known), determiner name, and date determined.

This species has a relatively small body (7-9 mm, 0.28-0.35 in.) and characteristic metallic-bronze color which may reflect bright green or purple (*reviewed in* Martin 2003a). It may be confused with other superficially similar click beetles occurring in the same habitat, such as *Nitidolimonius weidti, N. resplendens,* and *Eanus decoratus* (Johnson 2008, *pers. comm.*). *Eanus hatchi* is also easily confused with *Eanus striatipennis*, the latter of which is found at higher elevation bogs although there is a chance that it could be transient at the lower elevation habitat of *E. hatchi* (Johnson 2008, *pers. comm.*). Expert determination is recommended to confirm field identifications.

Notes:

The range and habitat of this species overlap with that of the ground beetle, *Agonum belleri,* particularly in King Co., Washington, at Snoqualmie Bog, Lake Marie, and Kings Lake Bog. Compared with *E. hatchi, A. belleri* is relatively easy to find (Bergdahl 2008, *pers. comm.*), and has a longer survey period (April to September).