

CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: Glyphopsyche sequatchie (Etnier and Hix)

COMMON NAME: Sequatchie caddisfly

LEAD REGION: 4

INFORMATION CURRENT AS OF: January 30, 2003

STATUS/ACTION (Check all that apply):

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: ____

No finding yet

90-day positive - FR date: ____

12-month warranted but precluded - FR date: ____

Is the petition requesting a reclassification of a listed species?

Listing priority change

Former LP: ____

New LP: ____

Latest date species first became a Candidate: ____

Candidate removal: Former LP: ____ (Check only one reason)

A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of Species.@

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Insects - Limnephilidae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Tennessee

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE:
Tennessee

LEAD REGION CONTACT (Name, phone number): Richard Gooch, 404/679-7124

LEAD FIELD OFFICE CONTACT (Office, name, phone number): Cookeville, Tennessee
Field Office, Rob Tawes, 931/528-6481, extension 213

BIOLOGICAL INFORMATION (Describe habitat, historic vs. current range, historic vs. current population estimates (# populations, #individuals/population), etc.):

The Sequatchie caddisfly (*Glyphopsyche sequatchie*) is only known from two spring runs - Owen Spring (the type locality) and Martin Spring - in Marion County, Tennessee. Both springs emerge from caves. Adult male *Glyphopsyche sequatchie* differ from *G. irrorata* and *G. missouri* (the other two U.S. species in the genus, the former being boreal and the latter only known from one spring in Missouri) in having far more elaborate genitalia and in having two rather than three patches of black spines on the dorsum of segment 8. Adult females, pupae, and larvae are also easily separable from these species.

Owen Spring's spring run averages about 12 meters (m) wide and 0.5 m deep and flows over a substrate of chert gravel, with silt and organic matter in the pool areas. The spring and spring run are within a small county park that extends to Old Highway 28, about 200 m below the cave entrance. About 15 m above Old Highway 28, a tributary of the Little Sequatchie River joins the spring run to form Owen Spring Branch. Another first order stream joins Owen Spring branch before entering the Sequatchie River about 1.3 kilometers (km) below Owen Spring. The species occurs in the spring run from about 30 m below the entrance of the cave downstream to about 150 m below the highway, a reach of about 300 m. At this point a lumber processing plant has dumped sawdust into the creek and larvae are difficult to find. No specimens were found in the Little Sequatchie tributary, where water temperatures are warmer.

The Martin Spring site was discovered in May 1998 and is about 12 air miles west-northwest from the type locality. This spring also emerges from a cave and has about twice the width and discharge of Owen Spring. However, though there appears to be twice as much suitable habitat, *Glyphopsyche sequatchie* are more difficult to find at this site. Etnier and Hix (1999) estimated population sizes at 500 to 5000 individuals for Owen Spring and 2 to 10 times higher at Martin Spring.

Larvae are large enough to be easily identified by early June and are in the final instar in early September. Etnier and Hix (1999) found final instar larvae in pools and gently flowing runs on dead limbs 5-10 cm in diameter with bark still attached. Other larvae were found on larger logs, with and without bark, and in wads of root hairs. Larvae were not found on rocks in the stream. In laboratory conditions, emergence dates extended from October 31 to February 4 and similar dates are expected in the wild (Etnier and Hix 1999).

THREATS (Describe threats in terms of the five factors in section 4 of the ESA providing specific, substantive information. If this is a removal of a species from candidate status or a change in listing priority, explain reasons for change):

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

The Sequatchie caddisfly is known from only two spring runs in Marion County, Tennessee, and has never been found outside these areas. This extremely limited distribution, small population size, the limited amount of occupied habitat, the ease of accessibility, and the species' annual life cycle make the Sequatchie caddisfly extremely vulnerable to extirpation. Threats to the species include siltation; road construction; agricultural, municipal, industrial, and mining runoff (both direct and from subsurface flows); vandalism; and pollution from trash thrown into the springs. The Owen Spring population is currently receiving incidental legal protection, because the federally endangered royal snail (*Pyrgulopsis ogorhaphe*) also occupies this spring.

B. Overutilization for commercial, recreational, scientific, or educational purposes.

There is no indication that overutilization has been a problem for the Sequatchie caddisfly. The specific areas inhabited by the Sequatchie caddisfly were not known to the scientific community until publication of the species description and, therefore, collecting has not been a significant threat. The minimal collecting that has occurred for scientific purposes is not believed to pose a threat. However, the release of locality information could increase the threat from commercial collectors, especially if they perceive the species as rare and regulations limiting collecting. Etnier and Hix (1999) in their description of the species, urge the scientific community to treat this species as endangered because of its apparent vulnerability to extirpation. The existence of this species and the specific areas it inhabits will likely not be widely known to the public until a proposed rule to list the species is published. If the specific areas inhabited by this species are revealed, it would be easy for vandals to seriously impact or eliminate this species.

C. Disease or predation.

Although various predators undoubtedly consume the Sequatchie caddisfly, predation by naturally occurring predators is a normal aspect of the population dynamics of a species and is not considered a threat to this species. No diseases are known to be affecting the species.

D. The inadequacy of existing regulatory mechanisms.

While the Sequatchie caddisfly receives incidental protection within the part of its range that is also occupied by the endangered royal snail, the State of Tennessee does not prohibit the taking of insects for scientific or other purposes. Federal listing will provide additional protection for this species from collectors by requiring Federal endangered species permits to take this species and by requiring Federal agencies to consult with the Service when projects they fund, authorize, or carry out may adversely affect the species.

E. Other natural or manmade factors affecting its continued existence.

Because the Sequatchie caddisfly is presently restricted to two small spring runs, it is very vulnerable to extirpation from intentional or accidental toxic chemical spills. Because the populations are physically isolated from each other, recolonization of any extirpated population would not be possible without human intervention.

FOR RECYCLED PETITIONS:

- a. Is listing still warranted? ____
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? ____
- c. Is a proposal to list the species as threatened or endangered in preparation? ____
- d. If the answer to c. above is no, provide an explanation of why the action is still precluded

LAND OWNERSHIP (Percentage Federal/state/private, identify non-private owners):

One population is located on county-owned property and one population is on private property.

PRELISTING (Describe status of conservation agreements or other conservation activities):

No written agreements are in place. The Service is coordinating with the Tennessee Wildlife Resources Agency to manage Owen Spring for the Royal snail which will incidentally benefit the Sequatchie caddisfly.

REFERENCES (Identify primary sources of information (e.g., status reports, petitions, journal publications, unpublished data from species experts) using formal citation format):

Etnier, D. A. 1997. Status of Ceratopsyche etnieri, Glyphopsyche missouri, Hydroptila decia, and Lepidostoma etnieri (Insecta: Trichoptera). Report submitted to the U. S. Fish and Wildlife Service Office of Endangered Species, Asheville, North Carolina and the Tennessee Wildlife Resources Agency, Nashville. 7 pp.

Etnier, D. A., and R. L. Hix. 1999. A new Glyphopsyche Banks (Trichoptera: Limnephilidae) from southeastern Tennessee. Proc. Ent. Soc. Washington 101:624-630.

Gordon, M. 1991. Survey of the aquatic mollusca of the Sequatchie River and battle Creek drainages. Report submitted to the U. S. Fish and Wildlife Service Office of Endangered Species, Asheville, North Carolina and the Tennessee Wildlife Resources Agency, Nashville. 21 pp.

LISTING PRIORITY (place * after number)

THREAT

Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5*
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude: This species is known from only two easily accessible spring runs in Tennessee. Because the Sequatchie caddisfly occurs in limited numbers in these two spring runs, it is vulnerable to local extirpation or perhaps even rangewide extinction due to both random catastrophic environmental (or human-induced) events and/or gradual changes in human land use patterns over time.

Imminence: These threats are gradual and/or not necessarily imminent but are of a high magnitude.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, annual retentions of candidates, removal of candidates, and listing priority changes.

Approve: Linda Kelsey March 14,
2003
Acting Regional Director, Fish and Wildlife Service Date

Concur: _____
Director, Fish and Wildlife Service Date _____

Do not concur: _____
Director, Fish and Wildlife Service Date _____

Director's Remarks:

-

-

Date of annual review: January 2003

Conducted by: Rob Tawes - Cookeville, Tennessee FO

Comments:

-

-

-