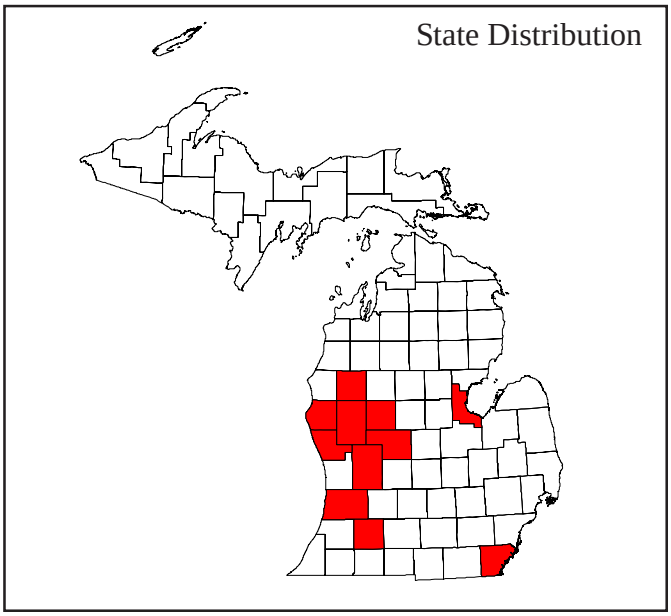
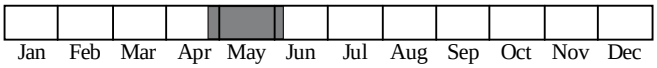
Incisalia irus (Godart) frosted elfin



Best Survey Period



Status: Threatened

Global and state rank: G3/S2S3

Family: Lycaenidae (harvesters, coppers, hairstreaks, and blues)

Range: Frosted elfins are found locally in much of the southeastern United States from western Tennessee and western Alabama east to the Atlantic coast, and from northern Florida north to Massachusetts. This species' range is more narrow and more focused along the coastal areas of the Atlantic coast states through the northeastern United Sates. The populations also extends westward in a narrow band through New York, Michigan, and Wisconsin. Frosted elfins also range from northeastern Texas to central Arkansas and northwestern Louisiana (Glassberg 1999).

State distribution: The frosted elfin has undergone significant range reduction since the 1960s and many sites that it currently occupies are degraded (Nielsen 1994). This species has been observed in predominantly the southwestern Lower Peninsula north to Lake County and east to Montcalm County. Additional observations have been made in Bay and Monroe Counties. However, this species may be present but undetected in other areas due to lack of surveying or misidentification.

Recognition: The frosted elfin is **larger** than most other elfin butterflies with a wingspan of approximately **1-1.25 inches (26-32 mm).** Both sexes, are **dark brown**, and have a **short tails protruding from the hindwings**. Located near the tail is a **distinguishing black spot**. **Hindwings are lighter in color on the outer half than at the base and are dusted with purple scales**. An **irregular postmedial line** is present on the forewing. Female frosted elfins appear more reddish compared to the males (Pyle 1981). The hoary elfin is the most similar species, but the frosted elfin is larger and has the black hind spot (Glassberg 1999, Nielsen 1999). In the larval stage, the caterpillar is yellowish green with three faint white lines dorsally, with white dashes subdorsally, with a whitish lateral line, and covered with brownish hairs (Scott 1986). The only known host plant for the larvae in Michigan is wild lupine (*Lupinus perennis* L.); however, in some portions of its range the frosted elfin feeds on wild indigo (*Baptisia tinctoria*) (Nielsen 1994).

Best survey time: Frosted elfin has one flight period between April 25 and June 5. In Michigan the flight period is more specifically the first week of May through the first week of June, with the peak in the latter half of May (Nielsen 1994). Adults tend to remain perched on their host plant until disturbed, at which time they fly close to the ground to another

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Phone: 517-373-1552

perch. This behavior can make them difficult to detect. Observations of nectaring have been almost exclusively on blueberry (V*accinium* spp.) blossoms (Nielsen 1999). Adults tend to be more active in the mornings than in the afternoons. When surveying for this species focus search effort on low perches near nectar sources and host plants.

Habitat: The frosted elfin uses early successional, open habitats such as oak savannahs, oak-pine barrens, open areas, and forest edges, maintained by fire or humans (Nielsen 1999, Glassberg 1999). When disturbances are eliminated and the savannah areas form closed canopies, the frosted elfin can be found in the transitional areas between closed canopy oak areas and sand prairies (Nielsen 1994). Roadsides and powerline and railroad rights-of-ways can provide habitat if adequate foodplants are available (i.e., wild lupine, wild indigo, and blueberry for nectaring). Soils in these habitats are frequently sandy and/or acidic.

Biology: Frosted elfin tend to be sedentary and spend not only their larval stage on the host plant (typically wild lupine or wild indigo) but also much of their adult life in close proximity to those species, where they perch close to or on the ground (Nielsen 1994). The males are territorial, defending clumps of host plants. Females typically lay a single egg on the flower buds of the host plant. After three to five days, the eggs hatch and the first instar larvae eat through the flower bud into the center of the flower. After the flower dries, the newly formed seed pods become the food source for the larvae. After 3 molts, the larvae pupate in a loose cocoon constructed of silk and leaves in the leaf litter at the base of the host plant (Cook 1906). The species overwinters in this stage of development.

Conservation/management: The frosted elfin uses habitat, oak savannahs and barrens, which have been greatly reduced in availability and quality throughout its range. Savannahs have been lost to development and conversion to urban areas, agricultural areas, pine plantations, etc. Many of the remaining acres have not been allowed to maintain natural processes (mainly fire) to set back succession. Subsequently, frosted elfin populations have been eliminated, reduced in size, and isolated from each other. Whenever possible, savannahs should be restored via opening the canopy and prescribed burns. While fire is important to maintain the needed habitat and host plants of this species, it is important to plan prescribed fires carefully as they likely cause high larval mortality and also may negatively impact pupating individuals. Human-made landscape features (such as rights-of-ways) should also be viewed as habitat and activities within those areas should be monitored to prevent pesticide use, damage from recreational vehicles or construction vehicles, and burning at inappropriate times. When frosted elfin populations are in close proximity to forest edges, care should be given to prevent spraying for gypsy moth (*Lymantria dispar*), as the overspray can have equally detrimental effects on this rare species. Management for the Karner blue butterfly (*Lycaeides melissa samuelis*) and wild lupine populations require management regimes nearly identical to those of frosted elfin

Research needs: We need additional research on the distribution and population status within Michigan for better protection of this rare species. Considering that conservation efforts for the Karner blue have likely improved the habitat for the frosted elfin, it may be useful to resurvey Karner blue management areas for new populations of frosted elfins. We have little information on this species' life history within the state. Specifically, additional research is needed on the habitat use as well as the threats to and limitations on populations of this rare species. Land management decisions would be much improved by a better knowledge of how fire affects frosted elfin populations during different stages of development (Shepherd 2005).

Related abstracts: Karner blue (butterfly), dry sand prairie, oak barrens, oak-pine barrens, oak openings, Persius duskywing, Ottoe skipper, dusted skipper, prairie-smoke

Selected references:

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Abstract citation

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