# SURVEY OF BUTTERFLIES AND PLANTS IN HILL PRAIRIES AND WETLANDS OF SOUTHWEST PIKE COUNTY, ILLINOIS

**April-October, 1999**

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## Purpose and Introduction

A thorough survey of butterflies (among many other minor invertebrate groups) has not been undertaken for Pike County, Illinois in hill prairies and bottom wetlands. It is the purpose of this inventory to study butterflies, larval and adult hosts and other plant species of these unique habitats adjacent to the Mississippi River in southwest Pike County, Illinois.

This region encompasses portions of the Mississippi River Section of the Upper Mississippi River and Illinois River Bottomlands Natural Division for wetland habitat and the Glaciated Section of the Middle Mississippi Border Natural Division for hill prairies.

Special attention has been given to endangered, threatened or scarce, potentially threatened species. Unusual or interesting vertebrate or other invertebrate species have also been inventoried when encountered, but this is a secondary objective of the study. Migratory butterflies have also been noted.

## Sites

Four primary sites were selected for this inventory, all within 20 miles of each other. Time has, unfortunately, not permitted detailed observation of numerous other smaller hill prairie sites in this portion of Pike County. However, limited visits have been made to some of these. The selected sites are, from southwest to northeast;

(1). **Mark Twain National Wildlife Refuge, Del Air Division** is located about one mile east to southeast of the town of Louisiana, Missouri, sections 16-21, 27, 28, T7S, R5W, Louisiana, Mo.-Il. 7 1/2' quadrangle. It is owned and administered by the U. S. Fish and Wildlife Service and consists of about 1800 acres of Mississippi River bottomland with wetland, wet prairie and bottomland forest.

(2). **Walnut Grove (Atlas) Hill Prairie Natural Heritage Landmark** is located about two miles southeast of Atlas in section 1, T7S, R5W, Summer Hill, Il. 7 1/2' quadrangle. It consists of about 15 acres of hill prairie, 10 acres of ravines and limestone cliffs and some surrounding forest.

(3). **Browning Hill Prairie-Hausen Prairie Natural Inventory Site** is located about one mile northwest of Rockport, Il. in section7, T6S, R5W, Rockport,

Il.-Mo. 7 1/2'quadrangle. The site has a little less than 1 acre of hill prairie and about 3.2 acres of mesic upland forest in thee Browning Hill portion.

(4). **Grubb Hollow Hill Prairie Nature Preserve** is located about 2.5 miles northwest of new Canton in section 31, T4S, R6W, Hull, Il.-Mo. 7 1/2' quadrangle. It possesses several acres of high quality loess and limestone hill prairie and mesic upland forest. It is owned and administered by the Illinois Department of Natural Resources.

**Topography, Aspect and Microclimate**

Del Air Division possesses about 1800 acres of prime bottomland and consists of marshes, bottomland forest and swamp, sloughs, wet prairie swales and meander scrolls. General elevation varies from 445-455' a. s. l. approximately. Average maximum July temperature is above 90 F. and average July temperature above 79 F. and average January temperature about 30 F., so the area is transitional between Lower Austral and Upper Austral Climatic Zones. Yearly rainfall averages about 40 inches per year.

Walnut Grove Hill Prairie has maximum elevations of about 720' a. s. l., with relief of 270', dropping to the level of the Mississippi River floodplain at 450' a. s. l.

Browning Hill Prairie possesses a maximum elevation of about 720' a. s. l. and a relief of about 270'. On the north side, it has a relief of 220', dropping to the level of Dutch Creek at 500' a. s. l.

Grubb Hollow Hill Prairie rises to about 720' a. s. l. with a relief of 260' to the Mississippi River floodplain at 460' a. s. l. It has a relief of 220' to the 500' a. s. l. level of Grubb Hollow Creek on its north side.

The relatively accordant summits of the hill prairies (720') and the standard relief of 260-270' and 220' to tributary stream valleys are notable.

All three hill prairies possess southwest-facing cliffs. These cliffs and the hill prairies surmounting them receive a full complement of afternoon solar radiation; because of this and because of their well drained loess and limestone soils, they are relatively dry. On sunny, warm days, pronounced thermals ascend from the bottomlands to the hill prairies. Aside from bunchgrasses, red cedar, sassafras, rough-leaved dogwood and flowering dogwood are typical associates.

Both Browning and Grubb Hollow Hill Prairies have north-facing, relatively steep slopes of cooler, moister microclimate which supports mesic forests with an understory of woodland plants and/or vines. Sugar maple-basswood forest is characteristic with admixture of black oak, bur oak, mockernut hickory (upper slopes), hackberry, slippery elm, Ohio buckeye, pawpaw, Kentucky coffee tree, honey locust (lower fringe), sycamore and other species.

Walnut Grove (Atlas) Hill Prairie possesses more extensive upland and more gradual north-facing backslopes than the other hill prairies. Valley ravines in the loess dissect this prairie especially on the south side, where they are exposed along an access road. These last provide a separate habitat from the cliffs, hill prairies and north-facing

slopes present elsewhere in the area. Black oak, black walnut, redbud, slippery elm, sycamore and hornbeam are typical tree associates of this habitat.

**Geology and Archaeology**

The Del Air Division bottomlands are underlain by alluvial soils associated with the Mississippi River. Changing river courses have resulted in numerous meander scars and scrolls, sloughs and backswamps during the recent history of river evolution. Periodically, floodplain deposits spread out over the bottomlands.

The upper portions of the hill prairies are underlain by windblown, water-laid deposits of silty loess, deposited during the Pleistocene. The silty material, steep slopes and aspect facing the sun promote a dry habitat and good drainage.

This material overlies Mississippian rocks of the Kinderhook and Valmyeran Series with type localities near Kinderhook. The upper material consists of fossiliferous and cherty limestone members of the Burlington Formation and in the lower part of the cliffs are exposed bluish to yellow-weathering shales of the Hannibal Shale. These formations are exposed in the west-facing cliffs and in stream cuts at Grubb Hollow Creek. Cherty limestone of the Burlington Formation is also noted on the upper part of the north-facing slope at the Browning Hill Prairie site. Hannibal Shale, exposed at the base of the cliffs, exemplifies a local shale barrens; certain plant species, such as obedient plant, are largely restricted to this zone.

Archaeologic relics - north points, spear points, bird points and arrowheads have been found on the Walnut Grove prairie and at nearby sites in the Mississippi River bottomlands. White chert from the local Burlington Formation was a favorite choice.

**Plant Associations**

**Del Air Division**

This is an important wetland habitat typified by sedges, big bluestem, partridge pea, wild senna, purple false foxglove, tickseed, sunflowers, swamp milkweed, cardinal flower, false indigo-bush (river locust), tick trefoils, asters, nettles, grapes, St. Johnswort, yellow loosestrife, spotted beebalm, beardstongues, willows, persimmon, goldenrods, spiderwort and ironweed among others.

**Walnut Grove Hill Prairie Natural Heritage Landmark**

Important hill prairie plants found here include little bluestem, big bluestem, red cedar, purple prairie clover, white prairie clover, sweet clovers, round-headed bush clover, blue hearts, blue-eyed grass, common milkweed, butterflyweed, whorled milkweed, asters, partridge pea, prairie larkspur, tick trefoils, mimosa, St. Johnswort, wild bergamot, beardstongue, puccoons, obedient plant (shale barrens), scurfy pea, mountain mint, gray-headed coneflower, goldenrods, ironweed, violets and grape.

**Browning Hill Prairie**

Typical hill prairie plant species here are whorled milkweed, green milkweed, asters, blue hearts, mimosa, red cedar, purple prairie clover, white prairie clover, round-headed bush clover, scurfy pea, mountain mint, gray-headed coneflower, goldenrods and spiderwort.

**Grubb Hollow Hill Prairie Nature Preserve**

Hill prairie plants include little bluestem, big bluestem, sideoats grama, narrow-leafed green milkweed, butterflyweed, whorled milkweed, leadplant, dwarf larkspur, sweet clovers, puccoons, pale beardstongue, scurfy pea, Virginia mountain mint, ironweed, violets and grape.

**Visits and Inventory**

**Wednesday, April 14, 1999. Angella Moorehouse.**

**Weather:** Cloudy, cool and windy. Maximum temperature about 55 degrees F.

**Grubb Hollow Hill Prairie Nature Preserve**

A black to dark gray larva with longitudinal orange sidestripes, narrow dorsal yellowish stripe and black spicules was photographed on a grass blade. Possible identification as a Nymphalid larva similar to Buckeye has been made. However, it could not be definitely identified, despite attempts, as the foodplant was uncertain and we did not have permit to collect and breed the larva. The early occurrence presents a problem as the Buckeye, if it is such, is not supposed to overwinter here, and known studies indicate that adults hibernate.

**Monday, May 10, 1999. David F. Hess and Angella Moorehouse.**

**Weather:** Sunny and hot, high cirrus and cumulus clouds. South wind, 10-20 mph. Low - 56F. High - 87F.

**Butterflies**

A total of 24 species and about 103 individuals of butterflies were observed on the combined wetland and hill prairies visits.

**Del Air Division**

Nine species of butterflies and about 14 individuals were seen as follows:

1 Silver-spotted Skipper
2 Black Swallowtail (male and female)

3 Tiger Swallowtails
1 Clouded Sulfur
2 Pearl Crescents (one on yellow cress)
1 Question Mark (summer form)
1 Goatweed Emperor
2 Monarchs
1 Peck's Skipper (on yellow cress)

Generally, rarer resident species and migrants are not expectable this early. Monarchs were already in evidence.

**Vertebrates at Delair**

Several pairs of American Redstarts were observed in marshes adjacent to the sloughs and a Western Meadowlark was heard. Great Blue Herons and Indigo Buntings were common and Red-Winged Blackbirds very abundant. On the Spring Bird Count two days previous, at least 78 bird species were counted in the area of the refuge, including Prothonotary Warblers in the river forests and a Cinnamon Teal (Rick Cantu, U. S. Fish and Wildlife Service, communication).

**Walnut Grove Hill Prairie**

Eighteen species of butterflies and about 62 individuals were seen, as follows:

1 Silver-spotted Skipper (hill prairie)
1 Northern Cloudy Wing (fescue-clover fields)
2 Juvenal's Dusky Wing (general)
1 Common Sooty Wing (ravine area)
1 Zabulon Skipper (male, ravine area)
3 Dusted Skippers (northern lobe, hill prairie)
1 Roadside Skipper (northern lobe, hill prairie)
1 Tiger Swallowtail (ravine area)
1 Cabbage White (ravine area)
1 Clouded Sulfur (ravine area)
21 Eastern Tailed Blue (puddle, fields, count conservative)
3 Spring Azure (general)
13 Pearl Crescent (ravine, mating pair)
1 Question Mark (ravine area)
1 Red Admiral (ravine)
7 Goatweed Emperor (general, most common hill prairies)
2 Monarch (ravine)
1 Peck's Skipper (ravine area)

**Special note:** The Dusted Skipper was represented by three males which landed on the tops of dried little bluestem grass and goldenrod stalks. This butterfly was observed only on the northern lobe of the Walnut Grove Hill prairie, and not on the southern lobe at all (the only butterflies seen there were Spring Azure and Goatweed

Emperor). It was also not observed at the smaller Browning Hill and Grubb Hollow Hill Prairies. It is common at Reavis Hill prairie in Mason County, Hillview prairie in Scott County and Cole Creek prairie in Greene County. It has been collected very locally on the sand prairie at Sand Dune-Scrub Oak and on sandstone bluffs in the Shawnee Hills. This species might be considered at least for the "watch list", as it is only a little more common than its congener, the Cobweb Skipper. The Dusted Skipper was observed at the same Walnut Grove Prairie site on May 8, 1982, on a visit with the Collards at that time.

The Olive (Juniper) Hairstreak was observed here on May 8, 1982, visiting Flowering Dogwood blossoms, but both the Dogwood blooming period and apparently the butterfly's first brood were past this year.

The Dusted Skipper and Goatweed Emperor were photographed.

**New Inventory Plants on Walnut Grove Hill Prairie**

Large numbers of Hill's Thistle, including some with flower stalks, were observed on the upper levels of Walnut Grove Hill Prairie, both the south and north lobes.

**Other Invertebrates on Walnut Grove Hill Prairie**

Green Tiger Beetles were abundant in both the ravine and on the hill prairie. An unidentified purple-bronze species of tiger beetle was limited to the hill prairie. Weevils and a small species of click beetle were observed on the fescue-clover field.

**Vertebrates on Walnut Grove Hill Prairie**

Birds in the ravine included Summer Tanager (male, seen); Northern Parula Warbler (heard); and either Kentucky Warbler or Carolina Wren (heard, but not verified visually). Present in the upland woodlands adjacent to the hill prairie were Yellow-billed Cuckoo (seen); Broad-winged Hawk; and Turkey Vultures. A flock of Cedar Waxwings were observed on the cliffside of the hill prairie.

Plains Leopard Frogs occurred in streams and puddles in the ravine. Leopard Frogs (possibly of this species) were observed by Angella Moorehouse in a visit to this prairie in late June, 1998, even within grassy areas of the dry hill prairies. A Blue Racer (unfortunately smashed by truck behind us) was observed on the highway below. An Ornate Box Turtle (with some suspicion of Three-toed Box Turtle hybridism) was observed crawling in the fescue-clover field.

**Conservation Notes**

Red cedar is being cut down on the hill prairie as a management procedure of the Illinois Department of Natural Resources to prevent undue encroachment. Some should be retained, as it is the larval foodplant of the Olive (Juniper) Hairstreak and an important source of shelter and food for some birds such as the Cedar Waxwing. The fescue-clover field is maintained by the owners as food and cover for game species.

**Browning Hill Prairie**

Nine species of butterflies and about 15 individuals were seen, given as the following:

2 Juvenal's Dusky Wing (cemetary and hill prairie)
1 Hobomok Skipper (pocahontas form, female, north slope)
1 Zebra Swallowtail (hill prairie, on amur honeysuckle)
3 Black Swallowtails (cemetary and roadside)
2 Spicebush Swallowtails (north slope)
1 Spring Azure (hill prairie)
2 Question Marks (cemetary and roadside)
2 Goatweed Emperors (hill prairie and roadside)
1 Monarch (roadside)

One black and orange-striped larva, possibly a Nymphalid larva, was also observed here on a grass blade (same as April 14 larva at Grubb Hollow Hill Prairie). A photograph of a Goatweed Emperor was taken.

**Vertebrates on Browning Hill Prairie**

Turkey Vultures soared on the updrafts above this prairie. A White-tailed Deer was observed on the north slope. Later in the day, while passing this prairie, a Blue Racer was observed on the highway below.

**Conservation Notes**

This hill prairie opening is very small (0.8-1 acre) and is being invaded by sassafras (Spicebush Swallowtail larval foodplant) and some rough-leaved dogwood. The wooded hillside on the north slope is being partly grazed by hogs, but the prairie is fenced off.

**Grubb Hollow Hill Prairie Nature Preserve**

Twelve species of butterflies and about 13 individuals were seen, as given in the following list:

1 Silver-spotted Skipper (near hill prairie)
1 Juvenal's Dusky Wing (near hill prairie)
1 Pipevine Swallowtail (north slope woodland)
1 Zebra Swallowtail (north slope woodland)
1 Tiger Swallowtail (woods on southwest side)
2 Spicebush Swallowtail (north slope woodland)

1 Cabbage White (cultivated field below prairie)
1 Clouded Sulfur (female, cultivated field)
1 Orange Sulfur (female, cultivated field)
1 Question Mark (near hill prairie)
1 American Lady (worn, near hill prairie)
1 Monarch (cultivated field below prairie)

One black larva with lateral orange stripes, same as previous two, was also noted on this prairie, on a young Composite, possibly an aster.

**New Inventory Plant Species on Grubb Hollow Hill Prairie**

Prairie larkspur was observed at Grubb Hollow Hill prairie. Wister's coralroot orchid was added to the inventory for the north slope woodlands. Both Virginia snakeroot and wild ginger (the former most likely and closest to adult observations) were noted as potential larval foodplants for the Pipevine Swallowtail. Pawpaw was noted for the Zebra Swallowtail.

**Vertebrates on Grubb Hollow Hill Prairie**

Turkey Vultures were noted above the hill prairie. A Wood Thrush was seen and heard on the north slopes. A Baltimore (Northern) Oriole was seen in a grove near the woodlands on the south side.

**Monday, June 14, 1999. Angella Moorehouse.**

**Weather:** Sunny and pleasant. Highs in 70's F. North wind, light.

**Butterflies**

A total of 32 species and about 491 individuals were observed on the combined wetland and hill prairies visits. Sixteen new species were observed for current total of 40.

**Del Air Division**

Nineteen species of butterflies and about 69 individuals were observed. Twelve of these were additional to May 10 observances. The list is the following:

3 Dun Skippers (moist soil, wet prairie, common milkweed)
3 Delaware Skippers (moist soil, wet prairie, same as above)
1 Tiger Swallowtail (fields/roadside)
5 Orange Sulfurs (moist fields, meadow)
2 Clouded Sulfurs (moist fields, meadow)
2 Little Sulfur Yellows (moist soil, wet prairie, partridge pea)
1 Cloudless Sulfur (fresh) (roadside ditch)

9 Bronze Copper (moist soil, wet prairie, common milkweed)
2 Gray Copper (moist soil, wet prairie, common milkweed)
1 Banded Hairstreak (moist soil, wet prairie, same as above)
1 Gray Hairstreak (moist soil, wet prairie, same as above)
14 Great Spangled Fritillaries (moist soil, roadside, same as above)
2 Pearl Crescents (moist soil, wet prairie, common milkweed)
3 Question Marks (wet bottomland woods, sedge meadow, shaded)
1 Eastern Comma (wet bottomland woods)
2 Hackberry Emperors (on gravel road)
6 Buckeyes (moist soil, wet prairie, roadside)
8 Red Admirals (on gravel road)
1 Monarch (roadside ditch)
1 Northern Pearly Eye (wet bottomland woods)

Most of the butterflies were observed on one of 3 large patches of common milkweed. Hackberry Emperors and Red Admirals were observed sunning on the gravel road. Green Darners were also present.

**Vertebrates at Del Air**

A Yellow-billed Cuckoo, Dickcissels (a large population year in Illinois this year), Common Yellowthroats, a Louisiana Waterthrush (heard only), Hairy Woodpeckers, Indigo Buntings and Bobwhites were all present. There were about a dozen Killdeers in a moist soil mudflat area in the southwest part of Del Air Division.

**Walnut Grove Hill Prairie**

About 19 species and 345 individuals of butterflies were observed, with 8 species new from the May 10 visit. The list is the following:

5 Silver Spotted Skipper (hill prairie, Hill's Thistle, prairie clover)
2 Delaware Skipper (hill prairie, Hill's Thistle, photo taken)
2 Black Swallowtail (bottomland fields, open woods)
2 Tiger Swallowtail (upland fields, woodland edge)
1 Cabbage White (upland fields)
15 Orange Sulfur (upland fields, white clover)
3 Clouded Sulfur (upland fields, white clover)
1 Dogface Sulfur (fresh) (hill prairie)
10 Eastern Tailed Blue (creekside mud areas, upland fields)
22 Great Spangled Fritillary (hill prairie, woods, Hill's Thistle)
1 Regal Fritillary (hill prairie, near purple prairie clover)
52 Question Mark (creek and woodland edge, gravel road)
2 Comma (same as above)
215 Hackberry Emperor (creek, bottomland woodlands, road)
2 Red Admiral (creek, gravel road)

2 Buckeye (creek, bottomland open woodlands)
2 American Painted Lady (very worn)
3 Red Spotted Purple (upland woods edge, wooded ravines)
3 Northern Pearly Eye (bottomland wooded edge)

Most of the Hackberry Emperors, Question Marks and Commas were observed at the low water crossings along the gravel road entering the uplands and hill prairies. The Orange Sulfurs, Clouded Sulfurs, Cabbage White and Eastern Tailed Blues were observed on clover in the upland fields. Species seen on the hill prairies themselves were Silver-Spotted Skippers, Delaware Skippers, Great Spangled Fritillaries, the Regal Fritillary, Buckeyes, American Painted Ladies and Dogface Sulfur. Nectar sources included white sweet clover, scurf pea, Hill's Thistle and a few early purple prairie clover. The Regal Fritillary, a threatened species, was seen flying over the prairie.

**New Inventory Plants on Walnut Grove Hill Prairie**

A new state-endangered species, the narrow-leaved green milkweed was found on the gravelly limestone-shale talus slopes of the hill prairie, associated with obedient plant. Green milkweed and prairie larkspur were also observed.

**Other Invertebrates on Walnut Grove Hill Prairie**

An undetermined species of Haploa Moth was observed along with Blue and Black Damselflies, Green Darners and Skimmer Dragonflies.

**Vertebrates on Walnut Grove Hill Prairie**

A Gray Squirrel was observed in the forests. Reptiles included the 6-lined Racerunner and along the creek, a small Snapping Turtle. Northern Leopard Frogs were also observed along the creeks.

Birds included Common Yellowthroat, Great Crested Flycatcher, Chimney Swift, Common Nighthawk, Indigo Bunting, Turkey Vultures and Red-Tailed Hawk.

**Pilot Knob Limestone Glade**

**Site Location**

This hill prairie is located in southeastern Pike County along the Illinois River bluffs. Prairie (glade openings) are present on the top of the hill (knob) with backside mesic and upland forest dominated by white oak, red oak and shagbark hickory. Much pawpaw and sassafras are present.

**Hill Prairie Plant Associations**

Leadplant, hoary puccoon, yellow pimpernel, violet wood sorrel, horse gentian, fragrant sumac, New Jersey tea, showy goldenrod and bunchgrasses are typical.

**Butterflies**

About 21 species and 77 individuals were observed at this prairie, mostly in the surrounding woodlands, in forest openings and along the road. The list is the following;

6 Silver-spotted Skipper (open woodlands)
1 Dun Skipper (open woodlands, barrens)
22 Zebra Swallowtail (open, sunny areas in woodlands)
5 Spicebush Swallowtail (upland open woods)
2 Eastern Black Swallowtail (roadside edge, wild carrot)
1 Tiger Swallowtail (roadside and wooded edge)
1 Cabbage White (weedy field)
4 Orange Sulfur (weedy field, roadside)
1 Clouded Sulfur (roadside)
1 Hickory or Banded Hairstreak (dry, open oak-hickory woods)
5 Great Spangled Fritillary (open woods, roadside)
1 Pearl Crescent (roadside, wooded edge)
6 Question Mark (open woodlands)
2 Comma (open woodlands)
1 Red Admiral (roadside)
1 Buckeye (roadside)
2 American Painted Lady (very worn) (gravel road)
8 Hackberry Emperor (gravel road)
2 Monarch (roadside, wooded edge)
2 Little Wood Satyr (dense woodland)
3 Northern Pearly Eye (dense moist woodland)

The abundance of pawpaw and sassafras as larval foodplants was reflected in the abundance of Zebra and Spicebush Swallowtails. The hairstreak was observed in the vicinity of both hickories and white oaks, but could not be observed at length or photographed. No distinctive rare or threatened species were seen here on this visit.

**Other Invertebrates at Pilot Knob Limestone Glade**

Haploa moths of undetermined species were seen at the prairie.

**Vertebrates at Pilot Knob Limestone Glade**

Mammals included Groundhog and White-tailed Deer. Amphibians included the Plains Leopard Frog.

Birds observed included Eastern Wood Pewee, Louisiana Waterthrush, Flicker, Wood Thrush and Ruby-Throated Hummingbird.

**June 22, 1999 - Angella Moorehouse, Dan Moorehouse, Bob Henry**

**Weather:** Partly cloudy, hazy, hot and muggy. Temperature near 90 degrees F.

**Butterflies**

A total of 33 species and 339 individuals were observed on this date. Of these, only 5 were new species from May 10 and June 14 for a total of 45 species thusfar.

**Del Air Division**

About 27 species and 102 individuals were observed with two new species for the area. The list is the following:

1 Silver-spotted Skipper (moist soil, wet prairie, milkweed)
1 Fiery Skipper (same, photo taken)
2 Delaware Skipper (same, photo taken)
1 Dun Skipper (same)
2 Tiger Swallowtail (wooded edge, roadside)
6 Cabbage White (moist soil, wet meadow)
6 Clouded Sulfur (moist soil, wet meadow, milkweed)
3 Dogface Sulfur (same)
7 Little Sulfur (wet ditches, wet meadow, partridge pea)
8 Cloudless Sulfur (wet ditches)
8 Gray Copper (wet ditches, milkweed, photo taken)
1 Gray Hairstreak (wet ditches, milkweed)
8 Eastern Tailed Blue (wet ditches, wet weedy fields, roadside)
2 Snout (wooded edge, gravel road, perched on car, photo taken)
11 Great Spangled Fritillary (all wet environments, milkweed)
7 Pearl Crescent (moist soil, wet prairie, ditches, milkweed)
3 Question Mark (bottomland woodland, shaded sedge meadow)
3 Comma (bottomland woods)
1 Red Admiral (scrub swamp/sedge meadow)
1 Buckeye (gravel road)
2 Viceroy (wet ditch, sedge meadow)
2 Red-Spotted Purple (bottomland wooded edge)
3 Hackberry (gravel road)
4 Monarch (wet ditch, wet prairie, milkweed)
2 Northern Pearly Eye (bottomland woodlands)
4 Little Wood Satyr (bottomland woodlands)

Most butterflies were observed nectaring on common milkweed, which were in full bloom, but not so many butterflies as on June 14. The bottomland forested area seemed to attract a number of butterflies within the woods, sedge meadow understory and on the gravel road.

**New Plant Inventory Species at Del Air**

The soft rush was observed in a sedge meadow near the center of the wetland area.

**Vertebrates at Del Air**

Leopard Frogs were present in the wetlands. Birds included Red-headed Woodpeckers, Great Blue Herons, Killdeers, Common Yellowthroats, Pileated Woodpeckers and a Belted Kingfisher.

**Walnut Grove Hill Prairie**

About 17 species of butterflies and 133 individuals were observed. Two of these were new since June 14. The list is the following:

1 Silver-spotted Skipper (hill prairie, on blue hearts)
1 Delaware Skipper (bottomland wood edge, on blackberry)
1 Tiger Swallowtail (upland wooded edge)
1 Spicebush Swallowtail (upland woods, wooded ravine)
5 Clouded Sulfur (upland fields, hill prairie)
1 Dogface Sulfur (hill prairie)
12 Orange Sulfur (upland fields, white clover)
1 Little Sulfur (upland fields)
27 Eastern Tailed Blue (creekside mud, upland fields)
3 Snout (open woodlands, gravel road)
15 Great Spangled Fritillary (hill prairie, woodland edges)
1 Meadow Fritillary (upland field, wooded edge)
25 Question Mark (gravel road, creekside gravel)
2 Eastern Comma (gravel road, bottomland open woods)
14 Pearl Crescent (creekside mud and gravel, open woods)
21 Hackberry Emperor (gravel road, creekside gravel)
2 Northern Pearly Eye (bottomland wooded edge)

Few butterflies were observed on the dry loess hill prairie ridges, even though an abundance of nectar sources were available, including: white sweet clover, scurf pea, purple prairie clover, crown vetch and blue hearts. The only butterfly observed nectaring on the loess hill prairie was one Silver-spotted Skipper on blue hearts. Most butterflies were observed along wooded edges or along the creek and gravel road. Possible larval

foodplants of the Dogface include the prairie clovers. Search was made for Olive Hairstreaks and Ozarkean Baltimore Checkerspots, but none were seen. Other observations included amber-winged dragonflies.

**Browning Hill Prairie**

About 14 species and 38 individuals were observed on June 22, with two new species seen as compared to previous visits to the area.

6 Silver-spotted Skipper (cemetary, on crown vetch)
1 Crossline Skipper (hill prairie, resting on little bluestem)
4 Delaware Skipper (hill prairie, on little bluestem and others)
1 Tiger Swallowtail (woodland edge)
2 Spicebush Swallowtail (wooded edge of hill prairie, woodlands)
1 Little Sulfur (cemetary, on crown vetch)
6 Orange Sulfur (cemetary, on crown vetch)
2 Eastern Tailed Blue (cemetary lawn)
2 Summer Azure (cemetary, wooded edge)
7 Great Spangled Fritillary (cemetary, wooded edge)
1 Eastern Comma (open woodlands)
1 Mourning Cloak (gravel road, wooded edge)
2 Hackberry Emperor (gravel road)
2 Little Wood Satyr (woodlands)

Few butterflies were observed on the hill prairie, only Delaware and Crossline Skippers and Spicebush Swallowtails near the sassafras patches, all probably near larval foodplants. Most butterflies were observed in the cemetary along the wooded edge or else feeding on crown vetch. Several Reversed Haploa Moths and widow skimmers were present.

**Grubb Hollow Hill Prairie**

About 10 species and 36 individuals were seen on Grubb Hollow Hill Prairie on June 22, 1999. Only one new species, the Snout, was observed here.

2 Zebra Swallowtail (woodlands)
3 Tiger Swallowtail (woodlands)
5 Spicebush Swallowtail (woodlands)
7 Cabbage White (edge of wheat field)
1 Eastern Tailed Blue (wooded edge)
2 Snout (gravel road)
10 Great Spangled Fritillary (woodlands)
1 Hackberry Emperor (gravel road)
1 Question Mark (woodlands)
4 Little Wood Satyr (woodlands)

No butterflies were observed on the dry loess hill prairie opening. Only a few flowers were in bloom, including: leadplant, narrow-leaved green milkweed (on the state-endangered list - a total of 16 flowering plants), green milkweed and scurf pea. Almost all the butterflies were observed in open sunny patches within the woodlands north of the prairie opening.

**Other Invertebrates at Grubb Hollow Hill Prairie**

A pair of unusual tiger beetle species were seen on the edge of the wheat field and black-winged damselflies were in evidence along the creek..

**Vertebrates at Grubb Hollow Hill Prairie**

An Eastern Box Turtle was seen on the edge of the wheat field, further indicating the need for hybridism studies between it, the Three-toed Box Turtle and the Ornate Box Turtle in the region. Bullfrogs were present along the creek. Indigo Buntings were observed on the hill prairie. An Eastern Cottontail was also seen along the edge of the wheat field.

**July 15, 1999 - Angella Moorehouse**

**Weather:** Fully sunny, minimum temperature 75 F., maximum 90 F., light wind, 5-7 mph.

**Butterflies:** A total of 31 species for the 3 sites and about 498 individuals was seen. Seven of these were new for the season, totalling 52 species.

**Del Air Division**

Twenty species and about 498 individual butterflies were seen. The list is the following:

2 Black Swallowtail (roadside ditch)
2 Tiger Swallowtail (roadside ditch)
2 Cabbage White (weedy field, wet prairie)
23 Clouded Sulfur (weedy fields, wet prairie)
1 Dogface Sulfur (roadside ditch)
19 Cloudless Sulfur (wet prairie, partridge pea field)
110 Little Sulfur (same and roadside ditch)
35 Orange Sulfur (same as above)
1 Bronze Copper (wood edge, sedge meadow)
3 Eastern Tailed Blue (wood edge, gravel road)
3 Summer Azure (wood edge)
2 Snout Butterfly (wood edge, gravel road)

1 Great Spangled Fritillary (roadside ditch)
5 Pearl Crescent (wood edge, partridge pea field)
2 Question Mark (wood edge, gravel road)
2 Comma (gravel road, roadside ditch)
2 Red Admiral (wood edge, gravel road
8 Buckeye (wet prairie, marsh)
2 Viceroy (wet prairie, roadside ditch)
6 Monarch (same)

Nectar sources available were buttonbush, swamp milkweed, common milkweed (past prime), Sullivant's milkweed, partridge pea, Queen Anne's lace, winged loosestrife, purple loosestrife, creeping primrose-willow, blue vervain, white sweet clover, red clover, smooth hedge nettle, water hemlock and black-eyed susan. Most of the butterflies (sulfurs - little, clouded, cloudless and orange, pearl crescents) were observed utilizing partridge pea, also a larval foodplant of the sulfurs. Others were on the milkweeds, mostly common milkweed (especially the monarchs and one buckeye) despite that it was worn and the other milkweeds at their prime. Amazingly, the tiny winged loosestrife was attractive to several butterflies (clouded sulfur, buckeye). This seems odd considering that its cousin, the exotic and troublesome purple loosestrife was nearby and offered much larger blossoms.

**Vertebrates at Del Air**

Birds seen included Great Horned Owl, Northern Bobwhite, Great Blue Heron, Common Yellowthroat, Dickcissel, Red-Headed Woodpecker, Brown Thrasher, Tree Swallow, Northern Rough-Winged Swallow, Eastern Wood Pewee, Killdeer and Spotted Sandpiper. Amphibians included the Northern Leopard Frog.

**Other Invertebrates at Del Air.**

Annual cicadas were common.

**Walnut Grove Hill Prairie**

About 34 species and 217 individual butterflies were tallied at Walnut Grove Prairie on July 15, 1999. Of these, five were new for the survey and a sixth, the Olive (Juniper) Hairstreak was new for this year. The list is the following:

8 Silver-spotted Skipper (dry hill prairie, road creek crossing)
3 Southern Cloudy Wing (same)
1 Southern Scallopwing (gravel road, low water creek crossing)
4 Checkered Skipper (same)
1 Fiery Skipper (wood edge in bottomlands)
1 Peck's Skipper (wet mud at creek crossing)
1 Cross Line Skipper (dry hill prairie, WORN)

1 Delaware Skipper (gravel road, low water creek crossing)
1 Pipevine Swallowtail (wet mud at creek crossing, FRESH)
5 Black Swallowtail (upland fields, road creek crossing)
1 Sleepy Orange (hill prairie)
1 Giant Swallowtail (edge of upland woods)
8 Tiger Swallowtail (edge of upland woods, road creek crossing)
1 Spicebush Swallowtail (edge of upland woods)
4 Cabbage White (upland fields)
10 Clouded Sulfur (upland fields)
3 Little Sulfur (upland fields)
21 Orange Sulfur (dry hill prairie, upland fields)
1 Banded Hairstreak (wet mud at creek crossing)
14 Olive (Juniper) Hairstreak (dry hill prairie with red cedars)
1 Gray Hairstreak (wet mud at creek crossing)
37 Eastern Tailed Blue (wet mud, road creek crossing, fields)
12 Summer Azure (wood edge, wet mud at creek crossing)
13 Snout Butterfly (wet mud, gravel road at creek crossing)
10 Great Spangled Fritillary (wood edge, upland fields, hill prairie)
8 Pearl Crescent (wood edge, wet mud at creek crossing)
17 Question Mark (wood edge, wet mud, gravel road)
4 Comma (gravel road at low water creek crossing)
3 Red Admiral (same)
3 Buckeye (dry hill prairie, WORN)
11 Hackberry Emperor (gravel road at low water crossing)
1 Northern Pearly Eye (bottomland wood edge, path near creek)
5 Little Wood Satyr (wood edge in bottomlands, wooded ravines)
1 Grayling (dark form, dry hill prairie)
1 Monarch (upland fields)

The great majority of butterflies were observed on the wet mud at the gravel road low water creek crossing. However, some were on nectar sources. Available nectar sources included blackberry lily, blue hearts, purple prairie clover, white prairie clover, white sweet clover, yellow sweet clover, red clover, white clover, pale spiked lobelia, Queen Anne's lace, partridge pea, hoary vervain, germander, wild petunia, rose pink. scurf pea, Virginia mountain mint, catnip and wild flax. The most attractive plants were pale spiked lobelia (Southern Cloudy Wing, Little Sulfur), white sweet clover (Olive Hairstreak, Orange Sulfur), purple prairie clover (Silver Spotted Skipper), hoary vervain (Orange Sulfur) and red clover (Orange Sulfur). The Southern Cloudy Wing, Southern Scallopwing, and Banded Hairstreak, Olive Hairstreaks, Northern Pearly Eye and Pipevine Swallowtail were photographed. The Banded Hairstreak was really worn. The Northern Pearly Eye appeared to use its eyespots as scare tactics - males can be pugnacious!

**Vertebrates at Walnut Grove Hill Prairie**

Birds included Indigo Bunting, Great Crested Flycatcher, Northern Cardinal, Tufted Titmouse, Blue Jay and Turkey Vulture. A Wild Turkey hen with at least ten young was observed in the upland field, denoting its success for the intended purpose. A White-Tailed Deer was observed.

**Other Invertebrates at Walnut Grove Prairie**

Black-winged Damselflies, Amber-winged Dragonflies, Katydid, Praying Mantis, Green Tiger Beetles and Green Darner were all present.

**Browning and Housen Hill Prairies**

At least 19 species and about 50 individual butterflies were observed at these two prairies on July 15, 1999. Two new species were observed, one the Giant Swallowtail, also seen at Walnut Grove Hill Prairie. The Housen Hill Prairie is located the next ridge over from Browning Hill Prairie, so the two are treated together here. This prairie, which has good nectaring sources is very excellent. It has received some management from State biologists. The prairie is about 2 acres in size without the severe encroachment seen at Browning. Scurf pea is abundant and there are several badger dens. Topographic features are similar to Browning Hill Prairie. The list of butterflies is the following:

1 Silver Spotted Skipper
1 Peck's Skipper
4 Little Glassy Wing Skipper
1 Pipevine Swallowtail
1 Eastern Black Swallowtail
3 Giant Swallowtail
8 Tiger Swallowtail
3 Spicebush Swallowtail
4 Cabbage White
1 Clouded Sulfur
3 Orange Sulfur
2 Eastern Tailed Blue
1 Summer Azure
10 Great Spangled Fritillary
1 Pearl Crescent
1 Question Mark
2 Red Admiral
2 Buckeye
1 Little Wood Satyr

Most of the butterflies were seen at the nectar sources along the wooded edge of Housen Hill Prairie, especially wild bergamot and ironweed (early this year, along with Joe-Pye-Weed elsewhere). Ironweed was the most heavily used flower. General nectar sources available included hoary vervain, ironweed, wild bergamot, Virginia mountain

mint, scurf pea, white prairie clover, blue hearts, woodland sunflower, germander and wild senna (!) on hill prairie. This is an almost inhospitably dry habitat for the latter. One of the writers (David F. Hess) has seen it once in the 1980's at the base of Cole Creek loess hill prairie in Greene County where it was being utilized by Cloudless Sulfur larvae and an adult Sleepy Orange Sulfur. Flowers utilized included ironweed (Giant Swallowtail, Tiger Swallowtail, Peck's Skipper and Clouded Sulfur, the latter dead and predated by a crab spider), bergamot (Giant Swallowtail, Little Glassy Wing and Great Spangled Fritillary) and Virginia mountain mint (Great Spangled Fritillary). Not much was blooming on the open prairie ridge. It was astonishing that at none of the hill prairies, did hoary vervain, mountain mint or germander receive much use from the butterflies as nectar sources, as is usual in many habitats. Few butterflies, unlike earlier in the season, were seen on crown vetch at the Browning Hill Prairie cemetary. No Ottoe Skippers were observed at any of the hill prairies. At most existing localities, the hill prairies are larger and have either pale purple coneflowers or gayfeather in abundance for summer nectaring sources. Biogeographic factors or precipitation amounts may also be a factor.

**Vertebrates at Browning/Housen Hill Prairies**

Birds included Turkey Vultures and Indigo Buntings. Turkey Vultures were perched in trees of the adjacent woodlands and subsequently circled the observer. Badger holes were abundant and a large buck with 10+ point velvet-coated antlers (for which Pike County is famous) snorted as it crashed out of a ravine and onto Housen Hill prairie. It stared at the observer before moving on. An unidentified wasp with orange abdomen was the only invertebrate noted, other than butterflies.

**Wednesday, August 12, 1999, Angella Moorehouse**

**Weather:** Sunny, high 85 degrees, low 70 degrees, winds 5-15 mph, increasing during day.

**Butterflies:** A total of 38 species and 659 individuals were seen, with all six possible swallowtail species seen at Grubb Hollow. Six new species were the following: Least Skipper, Tawny-Edged Skipper, Sleepy Orange, Tawny Emperor, Painted Lady and Variegated Fritillary.

**Del Air Division**

A total of 27 species and about 499 individuals were observed on August 12, 1999. These are the following:

2 Silver-spotted Skipper (wet prairie, weedy fields)
6 Least Skipper (wet ditch, marsh)
5 Fiery Skipper (wet ditch, marsh)

1 Tawny-edged Skipper (wet ditch)
6 Black Swallowtail (wet ditch, weedy fields)
4 Tiger Swallowtail (roadside ditch, edge of woods)
2 Cabbage White (weedy fields)
11 Clouded Sulfur (weedy fields, roadside ditch)
19 Dogface (wet ditch, wet prairie - one, form rosa)
120 Cloudless Sulfur (partridge pea fields, wet prairie, wet ditch, roadside)
178 Little Sulfur (partridge pea fields, wet ditch, roadside)
16 Sleepy Orange (roadside ditch)
25 Orange Sulfur (roadside ditch, weedy fields)
11 Eastern Tailed Blue (open woods, roadside)
3 Snout (edge of woods, marsh)
1 Variegated Fritillary (roadside)
1 Great Spangled Fritillary (marsh)
10 Pearl Crescent (weedy fields, wet prairie)
13 Question Mark (edge of woods, marsh)
1 Painted Lady (wet ditch, FRESH)
8 Red Admiral (wet ditch, marsh, wet prairie)
18 Buckeye (wet prairie, wet ditch, weedy fields)
15 Viceroy (wet ditch, marsh, wet prairie)
7 Hackberry Butterfly (edge of woods, gravel road)
1 Tawny Emperor (edge of woods)
11 Monarch (wet ditch, wet prairie)

Nectar sources available included partridge pea, swamp milkweed, cardinal flower, blue vervain, smartweeds, ironweed, sweet black-eyed susan, nettles and violet bush clover. Least Skipper was seen on smartweed (mild water pepper). A Dogface Sulfur was seen nectaring on common plaintain. Little Sulfurs were feeding on partridge pea and smartweed (mild water pepper). Monarchs were seen on swamp milkweed. A monarch pair was observed in amplexus at about 11 A.M. Cloudless Sulfurs were feeding on cardinal flower (also observed at Meredosia in previous years), partridge pea and wet mud. Eastern Tailed Blues were in close association with violet bush clover.

**Vertebrates**

Wildlife observations included the following birds: Yellow-billed Cuckoo, Red-Headed Woodpecker (immature), Eastern Phoebe, Belted Kingfisher, Northern Bobwhite, Indigo Bunting and Ruby-Throated Hummingbird. On the mud flats of Lower Swan Lake were 30 Great Egret, 2 Great Blue Heron and about 50 shorebirds (mostly Pectoral Sandpipers).

**Grubb Hollow Hill Prairie**

Butterflies included the following 33 species and about 160 individuals:

28 Silver-spotted Skipper (hill prairie, creek, some possibly Hoary Edge?)
3 Checkered Skipper (mud puddle on gravel road)
1 Common Sooty Wing (mud puddle on gravel road)
10 Least Skipper (along creek, resting on common hop vines)
1 Tawny-edged Skipper (hill prairie)
1 Delaware Skipper (along creek)
1 Pipevine Swallowtail (upland woods)
3 Zebra Swallowtail (upland woods, hill prairie)
4 Black Swallowtail (edge of field/woods at base of hill, roadside)
2 Giant Swallowtail (hill prairie, upland woods)
5 Tiger Swallowtail (upland and bottomland woods, roadside)
5 Spicebush Swallowtail (upland and bottomland woods, along creek)
9 Cabbage White (mowed roadside edge, edge of field)
11 Clouded Sulfur (mowed roadside edge, edge of field)
1 Cloudless Sulfur (along creek)
8 Little Sulfur (along creek, roadside)
1 Orange Sulfur (mowed roadside edge)
4 Eastern Tailed Blue (mud puddle on gravel road, along creek)
5 Summer Azure (edge of upland woods on hill prairie, summer form)
2 Snout (along creek, roadside)
4 Great Spangled Fritillary (bottomland woods, along creek, upland wood)
1 Pearl Crescent (along creek)
15 Question Mark (upland woods, along creek, bottomland woods)
2 Comma (along creek, bottomland woods)
2 Red Admiral (along creek, attracted to mud)
2 Buckeye (along creek, edge of field)
3 Viceroy (along creek)
1 Red Spotted Purple (upland woods)
12 Hackberry Butterfly (upland and bottomland woods)
4 Tawny Emperor (bottomland woods)
5 Pearly Eye (upland and bottomland woods)
2 Little Wood Satyr (upland woods, late for species)
2 Monarch (along creek, hill prairie)

Nectar sources available included scurf pea, old field goldenrod, ironweed, wild petunia, mountain mint, woodland sunflower, wild senna (on hill prairie), catnip, nettles, cup plant, bellflower, blue letuce and red clover. Silver spotted skippers (with possibly a few Hoary Edge) were primarily observed on hill prairie feeding on goldenrod, ironweed and woodland sunflower. Near the creek, a Silver spotted Skipper was observed in close association with stinging nettles. Hoary Edges have been taken (1960 and 1978) by Edwin Tryon and David Hess in a location near Rockport, so the species is probably present. Cabbage Whites were seen on catnip. Summer Azures were in close association with smooth sumacs and dogwoods. The Great Spangled Fritillary was observed nectaring on bellflower. A Question Mark was observed in association with elm, a female, possibly in the act of ovipositing. Tawny Emperor was seen resting on the side

of a tree at about 12 feet. Orange and Clouded Sulfurs were nectaring on red clover. Least Skippers were seen along the creek in good numbers, primarily resting on common hop vines. The Zebra Swallowtails were slightly tattered and espied floating over the hill prairie and in the woods adjacent to the hill prairie. NOTE: This is the largest number of species and individuals seen at Grubb Hollow, thusfar in the 1999 surveys; more butterflies were also seen on the hill prairie during this visit.

**Other Invertebrates**

Along the creek, black-winged damselflies, widow skimmers and a 10-spot dragonfly were observed.

**Vertebrates**

Birds seen were Great Crested Flycatcher, Eastern Wood Pewee and Turkey Vulture. Amphibians included Green Frog and Northern Leopard Frogs.

**September 7, 1999. David F. Hess, Angella Moorehouse and Dean Corgiat**

**Weather:** Mostly sunny, high 85 F., low 57 F., between 70 and 85 F. while on count, winds moderate from south, 10-15 mph.

**Butterflies**

About 42 species and 927 individuals were observed. New probable state late records were set for the Olive Hairstreak and Southern Scallopwing. New species seen were the Wild Indigo Dusky Wing and the Dainty Sulfur. There were large numbers of sulfurs, especially Cloudless, Little and Dogface Sulfurs.

**Grubb Hollow Hill Prairie Butterfly Survey**

About 12 species and 26 individuals were sighted on September 7. NOTE: We only surveyed the roadside and creek (20 minutes) and did not walk up to the hill prairie today due to time limitations.

2 Silver Spotted Skipper (along creek)
4 Spicebush Swallowtail (roadside, crop field)
1 Cabbage White (roadside)
1 Eastern Tailed Blue
2 Summer Azure, edge of woods)
2 Great Spangled Fritillary (along creek)
1 Pearl Crescent (along creek)
1 Red Admiral (along road)
2 Red Spotted Purple (edge of woods)
7 Hackberry Butterfly (trees along road and on people)

1 Northern Pearly Eye (roadside)
2 Monarch (roadside)

Nectar sources available included bellflower, common hops, stinging nettle, beggarticks, orange jewelweed, yellow jewelweed (higher on cliff along stream), nodding white smartweed, mild water pepper (smartweed), woodland sunflower, elm-leaved goldenrod and Canada goldenrod. No butterflies were observed nectaring. It was early, 10 a.m. and the sun was still low. The butterflies were primarily observed flying along the roadside or resting. The Great Spangled Fritillaries, Pearl Crescent and Silver Spotted Skippers were observed resting and sunning on common hops. Much black locust was nearby, a larval foodplant for the Silver Spotted Skipper. Several Black-Winged Damselflies were seen.

**Vertebrates**

Frogs of an unidentified species were seen along the creek. Birds included Blue Jay, Northern Cardinal (heard), seven Turkey Vultures, two Red-headed Woodpeckers, Black-capped Chickadees, Tufted Titmouse, Gray Catbird, two Baltimore Orioles (male heard) and a Mourning Dove.

**Housen Hill Prairie (adjacent to Browning Hill Prairie) Butterfly Survey**

About 28 species and 137 individuals were seen on September 7, 1999.

10 Silver Spotted Skipper (weedy field at base of hill, on bull thistle)
1 Southern Scallopwing (edge of woods, base of hill, on lambs quarters)
2 Wild Indigo Dusky Wing (hill prairie, on late boneset)
6 Checkered Skipper (hill prairie and road near weedy fields)
1 Tawny-edged Skipper (weedy field at base of hill, on bull thistle)
1 Roadside Skipper (hill prairie, on late boneset and flying)
3 Black Swallowtail (weedy field, on bull thistle)
2 Giant Swallowtail (weedy field, on bull thistle, along road)
12 Spicebush Swallowtail (weedy field and hill prairie edge, bull thistle)
10 Cabbage White (weedy field, on catnip)
2 Clouded Sulfur (hill prairie)
13 Cloudless Sulfur (weedy field/hill prairie, thistle, obedient plant, old field goldenrod)
1 Little Sulfur (weedy field)
8 Sleepy Orange (hill prairie, on obedient plant and flying)
9 Dainty Sulfur (weedy field and road at base of hill)
3 Orange Sulfur (hill prairie)
10 Gray Hairstreak (hill prairie, on late boneset)
16 Eastern Tailed Blue (hill prairie)
9 Great Spangled Fritillary (hill prairie and edge of woods)

3 Pearl Crescent (hill prairie, edge of woods)
1 Painted Lady (edge of woods)
1 Buckeye (hill prairies)
1 Viceroy (hill prairie, on late boneset)
1 Red Spotted Purple (edge of woods)
5 Hackberry Emperor (edge of woods)
1 Tawny Emperor (edge of woods)
4 Monarch (hill prairie)

A mating pair of Cloudless Sulfurs was seen on hill prairie at 1128, 78 degrees F. A mating pair of Silver Spotted Skippers was seen on hill prairie at 1130, 78 degrees F. Two Orange Sulfur green caterpillars were observed feeding on scurf pea on the hill prairie. A photo was taken to aid in identification.

Nectar sources available included: obedient plant (abundant on loess hill prairies of Housen), late boneset, old field goldenrod, bull thistle, purple false foxglove, catnip, jimson weed and false boneset. The hill prairie had an abundance of nectar flowers, of which obedient plant and false boneset were most alluring.

New records for the prairie included: prickly pear cactus, narrow-leafed green milkweed (endangered) and stickleaf.

**Other invertebrates**

A pregnant praying mantis was observed on the hill prairie. A moth was photographed.

**Vertebrates**

Evidence of fresh activity was seen at the badger holes. Birds included Ruby-Throated Hummingbird, Eastern Wood Pewee, Turkey Vulture and American Kestrel.

**Walnut Grove Hill Prairies**

About 31 species of butterflies and 234 individuals were observed here on September 7, 1999, including the following:

13 Silver-spotted Skipper (low water crossings, hill prairie)
4 Fiery Skipper (bottomland fields, on elephant's foot)
3 Tawny-Edged Skipper (upland fields, on bull thistle)
1 Crossline Skipper (upland fields, on bull thistle, female)
2 Pipevine Swallowtail (low water crossing, upland fields on thistle)
3 Black Swallowtail (low water crossing, upland field on esc. zinnias)
1 Giant Swallowtail (edge of woods on hill prairie)
10 Spicebush Swallowtail (edge of woods, upland fields on thistle)

4 Clouded Sulfur (upland field)
22 Cloudless Sulfur (low water crossing, on orange jewelweed)
15 Little Sulfur (upland field near partridge pea patch, finished bloom)
3 Sleepy Orange (hill prairie)
10 Dainty Sulfur (bottomland field, low water crossing)
5 Orange Sulfur (upland field, white female form)
1 Olive Hairstreak (worn, upland field, on late boneset)
4 Gray Hairstreak (hill prairie, on old field goldenrod)
62 Eastern Tailed Blue (upland field, near bush clover and other legumes)
7 Spring Azure (bottomland field, on nettle)
1 Snout (low water crossing)
7 Great Spangled Fritillary (upland field, bull thistle)
17 Pearl Crescent (low water crossing, on elephant's foot)
1 Question Mark (low water crossing, fall form)
5 Comma (low water crossing, fall and summer forms)
1 American Painted Lady (bottomland edge of woods)
3 Buckeye (hill prairie)
3 Viceroy (low water crossing)
8 Red-spotted Purple (low water crossing)
13 Hackberry Emperor (low water crossing)
1 Tawny Emperor (low water crossing)
2 Northern Pearly Eye (bottomland field near woods)
3 Monarch (hill prairie, upland field)

At least 14 black/white/orange-striped larvae were observed feeding on purple false foxglove, all in the same area on the southwest-facing ridge of the northern hill prairie. Photographs were taken of the caterpillars to aid in identification. We believe these are larvae of Buckeyes. Adult Buckeyes were observed hilltopping in the vicinity.

The record of the Olive Hairstreak is the latest for Illinois. Together with a fresh record taken on August 31 on goldenrod at Kibbe Field Station, Warsaw, Hancock Co. on cedar-oak limestone prairie-savannah, it suggests a partial third brood of the Olive Hairstreak for southern Illinois, usually listed as only double-brooded, even in the South. Except for these two records, we do not have records past July 20-25, for a second brood.

A male Black Swallowtail was observed hilltopping over the loess ridges and following a distinct flight pattern. This is the first we have observed Cloudless Sulfurs on Jewelweed, to add to unusual nectar sources of Obedient Plant at Housen Hill Prairie and Cardinal Flower at Del Air and at Meredosia in Pike County.

Nectar sources available included: elephant's foot, heath aster, bull thistle, purple false foxglove, late boneset, old field goldenrod, Canada goldenrod, pearly everlasting, great blue lobelia, orange jewelweed, slender ladies tresses and escaped zinnias. The most frequently visited flowers included jewelweed (Cloudless Sulfurs), zinnias (Black Swallowtail), bull thistle, elephant's foot, late boneset and old field goldenrod. Elephant's

foot, observed in the grass fields in the bottomlands was an unusual find, in that its range is generally restricted to the southern 1/4 to 1/3 of Illinois.

**Other Invertebrates**

Other invertebrates seen were narrow-waisted wasp on elephant's foot, honeybee on elephant's foot, cone-nosed beetle and the little blue damselfly.

**Vertebrates**

Vertebrates included a Short-Tailed Shrew (found dead at creek crossing) and numerous birds, including Ruby-Throated Hummingbird (on jewelweed), American Goldfinch, Black-capped Chickadee, Eastern Wood Pewee and Red-Bellied Woodpecker.

**Del Air Division Butterfly Survey**

About 22 species and 526 individuals were observed on September 7, 1999 . NOTE: Due to time constraints we were only able to spend an hour at this location, This meant that most observations had to be made while driving the gravel roads and at a brief stop at the mudflats.

5 Silver-spotted Skipper (wet prairie, weedy fields, on bull thistle)
13 Checkered Skipper (weedy fields, along road)
1 Least Skipper (at marsh near mudflats)
4 Fiery Skipper (wet ditch, marsh, on tickseed sunflower
2 Black Swallowtail (weedy fields)
4 Spicebush Swallowtail (wet prairie, weedy fields, on bull thistle)
5 Clouded Sulfur (weedy fields, roadside ditch)
51 Dogface Sulfur (wet ditch, wet prairie, one form **rosa,** f. indigo bush)
175 Cloudless Sulfur (all habitats, on bull thistle, mudpuddling on mudflat)
131 Little Sulfur (wet prairie, wet ditch, roadside)
1 Sleepy Orange (roadside ditch)
6 Dainty Sulfur (along road)
27 Orange Sulfur (roadside ditch, weedy fields, mudpuddling on mudflat)
8 Eastern Tailed Blue (weedy fields, roadside)
4 Variegated Fritillary (wet prairie, marsh, tickseed sunflower)
4 Pearl Crescent (weedy field, wet prairie)
1 Question Mark (edge of woods)
25 Buckeye (wet prairie, wet ditch, weedy fields, tickseed sunflower)
25 Viceroy (wet ditch, marsh, wet prairie, near willows and cottonwoods)
5 Red-Spotted Purple (wet ditch, wet prairie)
1 Hackberry Emperor (edge of woods, gravel road)
30 Monarch (wet ditch, wet prairie)

A mating pair of Cloudless Sulfurs was observed at 1440, 84 degrees F. The large number of migrant breeder sulfurs (about 365) is unusual, even for here where foodplants of partridge pea, false wild indigo, senna and wild marigolds and sneezeweed are abundant. This is, however a high year in the cycle where these species (except Sleepy Orange) were common even in the uplands. This species seems limited to lowland river valleys and adjacent hill prairies in Illinois, but occurs even in the mountains in Arkansas.

Nectar sources available included partridge pea, cardinal flower (red lobelia), Pennsylvania smartweeds, ironweed, purple false foxglove, sawtooth sunflower, tickseed sunflower, late boneset, bull thistle, Canada goldenrod, orange jewelweed, creeping primrose-willow, lotus and arrowleaf. The most frequently utilized flowers were bull thistle and tickseed sunflower.

**Other Invertebrates**

Fall webworm moths, banded garden spiders and, on the mudflats, Suborbicular Floater were observed.

**Vertebrates**

Mammals included a White-tailed Deer (grazing along the edge of the mudflats). Birds included Bald Eagles (1 immature, 3 adults). These have apparently been summer nesters at Del Air. Others included Semipalmated Plovers (common), Killdeer, Blue-Winged Teal, Great Blue Heron, Ruby-Throated Hummingbird, American Goldfinch (resting on mudflat) and Red-Tailed Hawk.

**Thursday, October 14, 1999. Angella Moorehouse**

**Weather:** Sunny, high 60 degrees F., low 45 degrees F. Winds brisk at 10-15 mph.

**Butterflies:** Only one site, Del Air Division, was visited by a 1.5 hour walk around Lower Swan Lake. A total of 19 butterfly species and 135 individuals were observed.

**Del Air Division**

7 Checkered Skipper (on asters in weedy fields and wet prairie)
1 Least Skipper (edge of bottomland woods)
1 Fiery Skipper (weedy fields/wet prairie)
2 Cabbage White (weedy fields, wet mud)
36 Clouded Sulfur (nectaring on asters, weedy fields, wet prairie, white f.)
5 Dogface Sulfur (partridge pea field, wet prairie, no **rosa** f.)
3 Little Sulfur (weedy fields)
2 Sleepy Orange (weedy fields and wet prairie)
16 Dainty Sulfur (on fog fruit and asters, roadside ditch, gravel road)

25 Orange Sulfur (nectaring on asters, weedy fields and wet prairie)
1 Pearl Crescent (edge of bottomland woods)
7 Question Mark (edge of bottomland woods, roadside ditch)
6 Comma (edge of bottomland woods, weedy fields, wet prairie)
1 Red Admiral (gravel road)
9 Buckeye (roadside ditch, weedy fields and wet prairie)
8 Viceroy (edge of bottomland woods, weedy fields, wet prairie)
1 Red-Spotted Purple (resting on dogwood shrub, edge of woods, WORN)
2 Goatweed Emperor (edge of bottomland woods, gravel road)
2 Monarch (weedy field near north entrance)

Nectar sources were limited and included primarily small white frost asters and a few late goldenrods, sunflowers, beggarticks, fog fruit and smartweeds. Dainty Sulfurs were observed feeding and resting on asters and fog fruit. Clouded Sulfurs and Orange Sulfurs were imbibing on asters. Most of the butterflies were observed in areas sheltered from the brisk winds including areas sheltered by trees along the roadside. Significant observations included a Least Skipper, 2 weeks later than previously reported in Illinois and the Goatweed Emperors which had not been seen since May. Although several Dogface Sulfurs were around, none had the rosy form expected in fall and no Cloudless Sulfurs were seen after the record numbers in September (seen in McDonough County to north as late as October 31 this year). Many of the Viceroys seen were the smaller males. The numbers of Dainty and Clouded Sulfurs were highest during this October survey.

**Vertebrates**

A large number and variety of birds were observed feeding at Del Air including several thousand waterfowl, most of them migratory, as follows: Northern Pintail, Mallard, Black Duck, Wood Duck and Canada Goose (small forms). Large flocks of 100's to 1000's of blackbirds (Red-winged Blackbirds, Common Grackles and European Starlings) were also seen. Swallows, primarily Tree Swallows and some Barn and Bank Swallows, were abundant in the fields searching for insects. Raptors included Osprey, Bald Eagle, Red-tailed Hawk, Northern Harrier and Cooper's Hawk. American Goldfinch, Swamp Sparrows and Song Sparrows were observed feeding on thistle and sunflower seed in the fields. Other birds seen included: Black-capped Chickadee, White-Breasted Nuthatch, Blue Jay, American Crow, Red-bellied Woodpecker, Red-headed Woodpecker, Acadian Flycatcher and Northern Bobwhite. A Western Ribbon Snake was seen sunning itself on the gravel road near the north entrance.

**Invertebrates**

An abundance of grasshoppers, locusts (especially Carolina Locust) and katydids were found along the whole route. Four woolly bear (Isabella Moth caterpillars were seen crossing the gravel road).

**Monday, February 28, 2000**

**Weather:** Sunny and warm, 60-64 degrees F.; winds from SW, 0-5 mph.

**Butterflies:** Three species, six individuals. New species: Gray Comma. All butterflies observed were worn adults which had overwintered.

**Grubb Hollow Nature Preserve**

One species and one individual was observed.

| | |
|---|---|
| 1 Mourning Cloak | Along creek. |

No nectar sources were yet available. Spring wildflowers just starting to emerge in bottomlands. Only green vegetation on the hill prairie was found at the base of wild rye and other grasses.

**Birds**

Observations included Turkey Vulture, Tufted Titmouse, Black-capped Chickadee, Northern Cardinal, Blue Jay, American Crow, Red-tailed Hawk, Northern Harrier, Killdeer, Red-bellied Woodpecker, Downy Woodpecker, Mourning Dove, Song Sparrow, White-Breasted Nuthatch and Horned Lark.

**Other Vertebrates**

White-tailed Deer and Fox Squirrels were in evidence. Minnows and Northern Leopard Frog (singing) were there.

**Other Invertebrates**

Present were wolf spider, green stinkbug, ladybird beetles (two species), black carpenter ant and water striders.

**Walnut Grove Hill Prairie**

Three species of butterflies and five individuals were present.

| | |
|---|---|
| 1 Mourning Cloak | Upland woods adjacent to hill prairie. |
| 3 Gray Comma | Pair observed in courtship in woods adjacent to prairie, along low water crossing |

| | | |
|---|---|---|
| | 1 Comma | Hill prairie |

No nectar sources were available. Grass was beginning to green up in the bottomlands.

**Birds**

Birds included Eastern Bluebird, American Kestrel, Turkey Vulture, Red-Tailed Hawk, Black-capped Chickadee, Tufted Titmouse, White-breasted Nuthatch, Dark-eyed Junco, Blue Jay, American Crow, Red-Bellied Woodpecker and Northern Cardinal.

**Other Vertebrates**

Fox Squirrels and Gray Squirrels were in evidence. Turtle/snake egg shells (10-12, 3/4" diameter) were observed on the prairie.

**Other Invertebrates**

A single, unidentified beetle, with red wings and green body, was observed on the prairie.

**Remarks and Acknowledgements**

This represents our official report as of April 1, 2000. However, we plan to make further April-June visits because our grant and permits extend until June 30th, because weather did not allow earlier visits in April (other than briefly on April 14th), and because some expected butterfly species had unusually low populations in western Illinois in 1999. Any additional observations will be issued in an addendum report. Some expected species, on the basis of earlier records near Rockport (1950-1980) by Edwin Tryon and ourselves might be Falcate Orangetip, Henry's Elfin, Ozarkean Baltimore Checkerspot, Silvery Checkerspot, Gorgone Checkerspot, Hoary Edge Skipper and possibly Striped Hairstreak. Also, we would have missed the Cobweb Skipper, if it were present.

The importance of these hill prairies and bottomland wetlands cannot be overemphasized, both as repositories of endangered, threatened and scarce plants and animals; as corridors for migrant species of all animal groups and for migrant breeders; and for habitat diversity and biodiversity of both natural and man-managed environments. They deserve all the protection we can give.

We acknowledge much help from individuals of the Department of Natural Resources and the Nature Preserves Division. We also appreciate the generosity of individual landowners in giving permission to make these studies. Also we thank Rick Cantu for help and additional information concerning Del Air. Dean Corgiat, Dan Moorehouse and Bob and Alice Henry accompanied us on some study days and we appreciate all their knowledgeable and technical help. We thank Scott Miner of the

Department of Geography, Drafting Section, Western Illinois University for his assistance in completing the dot maps of endangered, threatened and migratory butterfly, bird and plant species.

We attempted to identify the Nymphalid larva which had evidently overwintered on the hill prairies and were found in April and May, but to no avail. Individuals associated with the Center for Northern Prairie Studies attempted to help us. The only sure way is to get a permit, find the foodplant and breed the larva.

Recently, the Spring Azure **(Celastrina ladon)** and the Summer Azure **(Celastrina neglecta)** have been separated as species, and we are attempting to complete a study on these. The former is single-brooded in May and larva feeds on Flowering Dogwood; the other has multiple broods and feeds on a wide variety of hosts. We suspect both occur, because of suitable foodplants and known occurrences of the Spring Azure nearby in eastern Missouri. We may be able to report findings on July 1st.

Appended are appendices on site diversity, butterfly summary, individual counts by date for butterflies at each of the studied sites, and faunal and floral lists for southwestern Pike County, Illinois.

## SITE DIVERSITY

The greatest diversity, number of butterfly species observed, for combined sites occurred on the September 7 survey. Walnut Grove Hill Prairie had the highest number of species (35) reported on July 15. Walnut Grove also had a large diversity (31 species) observed on September 7. Grubb Hollow had the second highest diversity (33 species) reported on August 12. Browning and Housen Hill Prairies had a high of 28 species on September 7 and Del Air had a high of 27 species seen on August 12.

The greatest number of individuals butterflies (659) was on September 7. This was primarily due to the large numbers of sulfurs found at Del Air Division on that date. Del Air had a high of 526 individuals counted on September 7. The July 15 and August 12 counts were also high for Del Air with 498 and 499 individuals, respectively. These high counts were due to large numbers of cloudless sulfurs, little sulfurs, and dogface sulfurs. Walnut Grove was the second best site for numbers of individuals with 344 observed on June 14. This peak was due to large groups of hackberry butterflies (215 total) seen at the low water crossings. A high count of 160 individuals was seen at Grubb Hollow on August 12. The highest number of individuals at Browning and Housen Hill Prairies was seen on September 7 with 137 butterflies.

## BUTTERFLY SUMMARY

Seven butterfly species were seen during each of the seven butterfly surveys conducted in Southwest Pike County during 1999. These included: cabbage white, clouded sulfur, orange sulfur, pearl crescent, question mark, red admiral, and monarch.

### Skippers

The most common skipper seen was the silver spotted skipper, followed by common sooty wing and least skipper. While skippers as a group were seen throughout the season, there were 2 distinct peaks in species diversity. Nine types of skippers were seen on the May 10 as well as the July 15 surveys. The largest numbers of individual skippers occurred during August and September when the common skipper species (silver spotted skipper, common sooty wing, and least skipper) were at their peak. Unusual skipper observations included: an early record (June 22) for a fiery skipper and late records for a scalloped sooty wing (September 7) and a least skipper (October 14).

### Swallowtails

All 6 species of swallowtails were observed in August and 5 species were seen in May and again in July. The most abundant swallowtail was the spicebush with 28 individuals reported in September. Spicebush swallowtails were also seen at 6 of the surveys (May - September). Zebra swallowtails peaked at 22 individuals in June. Tiger swallowtails had a high of 18 in July.

Sulfurs

The most abundant sulfurs and among the most abundant of all butterflies reported during this study were cloudless sulfurs and little sulfurs. Cloudless sulfur numbers peaked at 215 on September 7 and 121 on August 12. Little sulfurs exhibited high counts on August 12 (186), September 7 (147), and July 17 (113). The high numbers of these species was attributed to the abundance of larval food sources available at Del Air, primarily vast fields of partridge pea. Other high numbers of sulfurs included: dogface (52) in September, orange (59) in July, clouded (36) in October, and dainty (25) in September. Sleepy oranges had a high of 16 on August 12 and 12 on September 7.

Coppers, Hairstreaks, Blues

The most abundant member of this group was the eastern tailed blue which peaked at 85 individuals in September. Eastern tailed blues were observed during 6 of the surveys (May - September). Other high counts included: 8 great coppers (6/22), 9 bronze coppers (6/14), 14 olive hairstreaks (7/15), and 16 ~~spring~~ summer azure (7/15).

Fritillaries

Four species of fritillaries were reported during this survey including 1 sighting of a regal fritillary at Walnut Grove (June 14). Other fritillaries included: variegated fritillary, meadow fritillary, and great spangled fritillary. The great spangled fritillary was the most common species represented and was observed on 5 of the surveys (June - September). Great spangled fritillaries peaked during June with 41 (6/14) and 43 (6/22) individuals.

Hackberry butterflies had the highest peak of all butterflies reported with a high of 225 on June 14. Buckeyes and viceroys both peaked at 29 individuals in September. Large numbers of buckeye caterpillars were observed on Walnut Grove Hill Prairie feeding on rough false foxglove during the September 7 count. Pearl crescents had a high of 25 in September. Sixteen red-spotted purples were seen in September. Relatively large numbers of the unusual goatweed emperor were observed in May (10 individuals) and 2 were observed at Del Air in October.

Anglewings

Questions marks peaked at 61 on June 14 when large groups were seen at low water crossings at Walnut Grove.

Satyrs

A peak of 9 northern pearly eyes were seen in August. Ten little wood satyrs were observed on June 22. A late record for little wood satyrs was reported at Grubb Hollow (2 worn individuals) seen on August 12.

Monarchs

A peak of 39 monarchs was seen during September.

**BUTTERFLY CHART - 1999/2000 SURVEYS for PIKE COUNTY**

| Butterfly | 05/10 | 06/14 | 06/22 | 07/15 | 08/12 | 09/07 | 10/14 | 2/28 |
|---|---|---|---|---|---|---|---|---|
| silver-spotted skipper | 3 | 11 | 8 | 9 | 30 | 30 | | |
| southern cloudy wing | | | | 3 | | | | |
| northern cloudy wing | 1 | | | | | | | |
| scalloped sooty wing | | | | 1 | | 1 | | |
| juvenal's dusky wing | 5 | | | | | | | |
| wild indigo dusky wing | | | | | | 2 | | |
| checkered skipper | | | | 4 | 3 | | 7 | |
| common sooty wing | 1 | | | | 1 | 19 | | |
| least skipper | | | | | 16 | 1 | 1 | |
| fiery skipper | | | 1 | 1 | 5 | 8 | 1 | |
| peck's skipper | 3 | | | 2 | | | | |
| tawny-edged skipper | | | | | 2 | 4 | | |
| cross-line skipper | | | 1 | 1 | | 1 | | |
| little glassy wing | | | | 4 | | | | |
| delaware skipper | | 5 | 7 | 1 | 1 | | | |
| hobomok skipper | 1 | | | | | | | |
| zabulon skipper | 1 | | | | | | | |
| dun skipper | | 4 | 1 | | | | | |
| dusted skipper | 3 | | | | | | | |
| roadside skipper | 1 | | | | | 1 | | |
| pipevine swallowtail | 1 | | | 2 | 1 | 2 | | |
| zebra swallowtail | 2 | 22 | 2 | | 3 | | | |
| black swallowtail | 5 | 4 | | 8 | 10 | 8 | | |
| giant swallowtail | | | | 4 | 2 | 3 | | |
| tiger swallowtail | 5 | 4 | 7 | 18 | 9 | | | |
| spicebush swallowtail | 4 | 5 | 8 | 4 | 5 | 28 | | |
| cabbage white | 2 | 2 | 13 | 10 | 11 | 11 | 2 | |
| clouded sulfur | 3 | 6 | 11 | 34 | 22 | 11 | 36 | |
| dogface | | 1 | 4 | 1 | 19 | 52 | 5 | |
| cloudless sulfur | | 1 | 8 | 19 | 121 | 215 | | |
| little sulfur | | 2 | 9 | 113 | 186 | 147 | 3 | |
| sleepy orange | | | | 1 | 16 | 12 | 2 | |
| dainty sulfur | | | | | | 25 | 16 | |
| orange sulfur | 1 | 24 | 18 | 59 | 26 | 35 | 25 | |
| great copper | | 2 | 8 | | | | | |
| bronze copper | | 9 | | 1 | | | | |
| banded hairstreak | | 1 | | 1 | | | | |
| hickory/banded hairstreak | | 1 | | | | | | |
| olive hairstreak | | | | 14 | | 1 | | |
| gray hairstreak | | 1 | 1 | 1 | | 14 | | |
| eastern tailed blue | 21 | 10 | 38 | 42 | 15 | 85 | | |
| spring azure | 4 | | 2 | 16 | 5 | 9 | | |
| snout butterfly | | | 7 | 15 | 5 | 1 | | |
| variegated fritillary | | | | | 1 | 4 | | |
| great spangled fritillary | | 41 | 43 | 21 | 5 | 18 | | |
| regal fritilllary | | 1 | | | | | | |
| meadow fritillary | | | 1 | | | | | |
| pearl crescent | 15 | 3 | 21 | 14 | 11 | 25 | 1 | |
| question mark | 5 | 61 | 29 | 20 | 28 | 2 | 7 | |
| comma | | 5 | 3 | 6 | 2 | 5 | 6 | 1 |
| gray comma | | | | | | | | 3 |
| mourning cloak | | | 1 | | | | | 2 |
| american painted lady | 1 | 4 | | | | 1 | | |
| painted lady | | | | | 1 | 1 | | |
| red admiral | 1 | 11 | 1 | 7 | 10 | 1 | 1 | |
| buckeye | | 9 | 1 | 13 | 20 | 29 | 9 | |
| viceroy | | | 2 | 2 | 18 | 29 | 8 | |
| red-spotted purple | | 3 | 2 | | 1 | 16 | 1 | |
| goatweed emperor | 10 | | | | | | 2 | |
| hackberry butterfly | | 225 | 27 | 11 | 19 | 26 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| tawny emperor | | | | | 5 | 2 | | |
| pearly eye | | 7 | 4 | 1 | 9 | 3 | | |
| little wood satyr | | 2 | 10 | 6 | 2 | | | |
| olympian wood nymph | | | | 1 | | | | |
| monarch | 6 | 3 | 4 | 7 | 13 | 39 | 2 | |
| TOTAL | 105 | 490 | 303 | 498 | 659 | 927 | 135 | 6 |
| # SPECIES | 25 | 32 | 33 | 39 | 38 | 42 | 19 | 3 |
| # Sites visited per trip | 4 | 3 | 4 | 3 | 2 | 4 | 1 | 2 |
| Approx. time per date (hrs) | 5 | 4 | 6 | 5 | 4 | 5 | 2 | 3.5 |
| # observers | 2 | 1 | 3 | 1 | 1 | 2 | 1 | 1 |

**BUTTERFLY CHART - 1999/2000 SURVEYS for Grubb Hollow Nature Preserve**

| Butterfly | 05/10 | 06/22 | 08/12 | 09/07 | 2/28 |
|---|---|---|---|---|---|
| silver-spotted skipper | 1 | | 28 | 2 | |
| juvenal's dusky wing | 1 | | | | |
| wild indigo dusky wing | | | | | |
| checkered skipper | | | 3 | | |
| common sooty wing | | | 1 | | |
| least skipper | | | 10 | | |
| tawny-edged skipper | | | 1 | | |
| delaware skipper | | | 1 | | |
| pipevine swallowtail | 1 | | 1 | | |
| zebra swallowtail | 1 | 2 | 3 | | |
| black swallowtail | | | 4 | | |
| giant swallowtail | | | 2 | | |
| tiger swallowtail | 1 | 3 | 5 | | |
| spicebush swallowtail | 2 | 5 | 5 | 4 | |
| cabbage white | 1 | 7 | 9 | 1 | |
| clouded sulfur | 1 | | 11 | | |
| cloudless sulfur | | | 1 | | |
| little sulfur | | | 8 | | |
| orange sulfur | 1 | | 1 | | |
| eastern tailed blue | | 1 | 4 | 1 | |
| spring azure | | | 5 | 2 | |
| snout butterfly | | 2 | 2 | | |
| variegated fritillary | | | | | |
| great spangled fritillary | | 10 | 4 | 2 | |
| pearl crescent | | | 1 | 1 | |
| mourning cloak | | | | | 1 |
| question mark | 1 | 1 | 15 | | |
| comma | | | 2 | | |
| american painted lady | 1 | | | | |
| red admiral | | | 2 | 1 | |
| buckeye | | | 2 | | |
| viceroy | | | 3 | | |
| red-spotted purple | | | 1 | 2 | |
| hackberry butterfly | | 1 | 12 | 7 | |
| tawny emperor | | | 4 | | |
| pearly eye | | | 5 | 1 | |
| little wood satyr | | 4 | 2 | | |
| monarch | 1 | | 2 | 2 | |
| TOTAL | 13 | 36 | 160 | 26 | 1 |
| # SPECIES | 12 | 10 | 33 | 12 | 1 |

**BUTTERFLY CHART - 1999/2000 SURVEYS for Walnut Grove Hill Prairies (Atlas)**

| Butterfly | 05/10 | 06/14 | 06/22 | 07/15 | 09/07 | 2/28 |
|---|---|---|---|---|---|---|
| silver-spotted skipper | 1 | 5 | 1 | 8 | 13 | |
| southern cloudy wing | | | | 3 | | |
| northern cloudy wing | 1 | | | | | |
| scalloped sooty wing | | | | 1 | | |
| juvenal's dusky wing | 2 | | | | | |
| checkered skipper | | | | 4 | | |
| common sooty wing | 1 | | | | | |
| fiery skipper | | | | 1 | 4 | |
| peck's skipper | 1 | | | 1 | | |
| tawny-edged skipper | | | | | 3 | |
| cross-line skipper | | | | 1 | 1 | |
| delaware skipper | | 2 | 1 | 1 | | |
| zabulon skipper | 1 | | | | | |
| dusted skipper | 3 | | | | | |
| roadside skipper | 1 | | | | | |
| pipevine swallowtail | | | | 1 | 2 | |
| black swallowtail | | 2 | | 5 | 3 | |
| giant swallowtail | | | | 1 | 1 | |
| tiger swallowtail | 1 | 2 | 1 | 8 | | |
| spicebush swallowtail | | | 1 | 1 | 10 | |
| cabbage white | 1 | 1 | | 4 | | |
| clouded sulfur | 1 | 3 | 5 | 10 | 4 | |
| dogface | | 1 | 1 | | | |
| cloudless sulfur | | | | | 22 | |
| little sulfur | | | 1 | 3 | 15 | |
| sleepy orange | | | | 1 | 3 | |
| dainty sulfur | | | | | 10 | |
| orange sulfur | | 15 | 12 | 21 | 5 | |
| banded hairstreak | | | | 1 | | |
| olive hairstreak | | | | 14 | 1 | |
| gray hairstreak | | | | 1 | 4 | |
| eastern tailed blue | 21 | 10 | 27 | 37 | 61 | |
| spring azure | 3 | | | 12 | 7 | |
| snout butterfly | | | 3 | 13 | 1 | |
| great spangled fritillary | | 22 | 15 | 10 | 7 | |
| regal fritilllary | | 1 | | | | |
| meadow fritillary | | | 1 | | | |
| pearl crescent | | | 14 | 8 | 17 | |
| mourning cloak | | | | | | 1 |
| question mark | 1 | 52 | 25 | 17 | 1 | |
| gray comma | | | | | | 3 |
| comma | | 2 | 2 | 4 | 5 | 1 |
| american painted lady | | 2 | | | 1 | |
| red admiral | 1 | 2 | | 3 | | |
| buckeye | | 2 | | 3 | 3 | |
| viceroy | | | | | 3 | |
| red-spotted purple | | 2 | | | 8 | |
| goatweed emperor | 7 | | | | | |
| hackberry butterfly | | 215 | 21 | 11 | 13 | |
| tawny emperor | | | | | 1 | |
| pearly eye | | 3 | 2 | 1 | 2 | |
| little wood satyr | | | | 5 | | |
| olympian wood nymph | | | | 1 | | |
| monarch | 2 | | | 1 | 3 | |
| TOTAL | 49 | 344 | 133 | 217 | 234 | 5 |
| # SPECIES | 17 | 19 | 17 | 35 | 31 | 3 |

Appendix 1. Fauna List for 1999 Butterfly Survey of Southwest Pike County, Illinois.

Butterflies:

| | |
|---|---|
| *Anaea andria* | Goatweed Emperor |
| *Ancyloxypha numitor* | Least Skipper |
| *Asterocampa celtis* | Hackberry Butterfly |
| *Asterocampa clyton* | Tawny Emperor |
| *Atryonopis hianna* | Dusted Skipper |
| *Atrytone delaware* | Delaware Skipper |
| *Basilarchia archippus* | Viceroy |
| *Basilarchia arthemis astyana* x | Red Spotted Purple |
| *Battus philenor* | Pipevine Swallowtail |
| *Boloria bellona* | Meadow Fritillary |
| *Celastrina ladon* | Spring Azure |
| *Celastrina neglecta* | Summer Azure |
| *Cercyonis pegala olympus* | Olympian Wood Nymph (Grayling) |
| *Colias eurytheme* | Orange Sulfur |
| *Colias philodice* | Clouded Sulfur |
| *Danaus plexippus* | Monarch |
| *Enodia anthedon* | Northern Pearly Eye |
| *Erynnis baptisiae* | Wild Indigo Dusky Wing |
| *Erynnis horatius* | Horace's Dusky Wing |
| *Erynnis juvenalis* | Juvenal's Dusky Wing |
| *Euphyes vestris metacomet* | Dun Skipper |
| *Euptoieta claudia* | Variegated Fritillary |
| *Eurema lisa* | Little Sulfur |
| *Eurema nicippe* | Sleepy Orange |
| *Eurytides marcellus* | Zebra Swallowtail |
| *Everes comyntas* | Eastern Tailed Blue |
| *Gaeides xanthoides dione* | Great (Gray) Copper |
| *Heraclides cresphontes* | Giant Swallowtail |
| *Hyephila phyleus* | Fiery Skipper |
| *Hyllolycaena hyllus* | Bronze Copper |
| *Junonia coenia* | Buckeye |
| *Libytheana bachmanni* | Snout Butterfly |
| *Megisto cymela* | Little Wood Satyr |
| *Mitoura gryneus* | Olive Hairstreak |
| *Nathalis iole* | Dainty Sulfur |
| *Nymphalis antiopa* | Mourning Cloak |
| *Papilio polyxenes* | Black Swallowtail |
| *Phoebis sennae eubule* | Cloudless Sulfur |
| *Pholisora catullus* | Common Sooty Wing |
| *Phyciodes tharos* | Pearl Crescent |
| *Pieris* spp. | Cabbage White |

Appendix 1. Fauna List for 1999 Butterfly Survey of SW Pike County, Illinois (continued).

Butterflies:

| | |
|---|---|
| *Poanes hobomok* | Hobomok Skipper |
| *Polites coras* | Peck's Skipper |
| *Polites origenes* | Crossline Skipper |
| *Polites themistocles* | Tawny-edged Skipper |
| *Polygonia comma* | Comma |
| *Polygonia interrogationis* | Question Mark |
| *Polygonia progne* | Gray Comma |
| *Pompeius verna* | Little Glassy Wing |
| *Pterourus glaucus* | Tiger Swallowtail |
| *Pterourus troilus* | Spicebush Swallowtail |
| *Pyrgus communis* | Checkered Skipper |
| *Satryium calanus falacer* | Banded Hairstreak |
| *Satryium caryaevorous* | Hickory Hairstreak |
| *Speyeria cybele* | Great Spangled Fritillary |
| *Speyeria idalia* | Regal Fritillary* |
| *Staphylus hayhurstii* | Scalloped Sooty Wing |
| *Strymon melinus humuli* | Gray Hairstreak |
| *Thorybes bathyllus* | Southern Cloudy Wing |
| *Thorybes pylades* | Northern Cloudy Wing |
| *Vanessa atalantia rubria* | Red Admiral |
| *Vanessa cardui* | Painted Lady |
| *Vanessa virginiensis* | American Painted Lady |
| *Zerene cesonia* | Dogface Sulfur |

* State Threatened species

Other Invertebrates - Insects:

| | |
|---|---|
| Family Acrididae | Locusts |
| Family Cicadidae | Cicadas |
| Family Coenagrionidae | Narrow-winged Damselflies |
| Family Elateridae | Click Beetles |
| Family Tetrigidae | Pygmy Grasshopper |
| Family Tettigoniidae | Katydids |
| *Acrosternum hilare* | Green Stink Bug |
| *Adalia bipunctata* | Two-spotted Ladybird Beetle |
| *Anax junuis* | Big Green Darner |
| *Calopteryx maculata* | Black-winged Damselfly |
| *Camponotus pennsylvanicus* | Black Carpenter Ant |
| *Cicindela repanda* | Bronzed Tiger Beetle |
| *Cicindela sexguttata* | Green Tiger Beetle |
| *Disostiera carolina* | Carolina Locust |
| *Gerris remigis* | Common Water Strider |

Appendix 1. Fauna List for 1999 Butterfly Survey of SW Pike County, Illinois (continued).

Other Invertebrates - Insects:

| | |
|---|---|
| *Haploa reversa* | Reversed Haploa Moth |
| *Hippodamia convergens* | Ladybird Beetle |
| *Libellula luctuosa* | Widow Skimmer |
| *Libellula pulchella* | Ten-spot Dragonfly |
| *Mantis religiosa* | European Praying Mantid |
| *Melanotus* sp. | Brown Click Beetle |
| *Perithemis domita* | Amber-winged Dragonfly |
| *Pyrrharctia isabella* | Isabella Tiger Moth (Wooly Bear) |
| *Sphex procerus* | Thread-waisted Wasp |
| *Triatoma sanguisuga* | Bloodsucking Conenose |

Other Invertebrates - Arachnids:

| | |
|---|---|
| Family Thomisidae | Crab Spiders |
| *Argiope trifasciata* | Banded Garden Spider |
| *Boophilus annulatus* | Lone Star Tick |
| *Dermacentor andersonii* | Rocky Mountain Wood Tick |
| *Lycosa* sp. | Wolf Spider |

Other Invertebrates - Mussels:

| | |
|---|---|
| *Anodonta suborbiculata* | Flat Floater |

Vertebrates - Amphibians:

| | |
|---|---|
| *Rana blairi* | Plains Leopard Frog |
| *Rana catesbeiana* | Bullfrog |
| *Rana clamitans* | Green Frog |
| *Rana pipiens* | Northern Leopard Frog |

Vertebrates - Reptiles:

| | |
|---|---|
| *Chelydra serpentina* | Common Snapping Turtle |
| *Cnemidophorus sexlineatus* | Six-lined Racerunner |
| *Coluber constrictor* | Blue Racer |
| *Terrapene carolina* | Eastern Box Turtle |
| *Terrapene ornata* | Ornate Box Turtle |
| *Thamnophis sauritus* | Western Ribbon Snake |

Vertebrates - Mammals:

| | |
|---|---|
| *Blarina brevicauda* | Northern Short-tailed Shrew |
| *Marmota monax* | Woodchuck |
| *Odocoileus virginianus* | White-tailed Deer |
| *Sciurus carolinensis* | Gray Squirrel |
| *Sciurus niger* | Fox Squirrel |
| *Sylvilagus floridanus* | Eastern Cottontail |
| *Taxidea taxus* | Badger |

Appendix 1. Fauna List for 1999 Butterfly Survey of SW Pike County, Illinois (continued).

Vertebrates - Birds:

| | |
|---|---|
| *Actitis macularia* | Spotted Sandpiper |
| *Agelaius phoeniceus* | Red-winged Blackbird |
| *Aix sponsa* | Wood Duck |
| *Anas acuta* | Northern Pintail |
| *Anas cyanoptera* | Green-winged Teal |
| *Anas discors* | Blue-winged Teal |
| *Anas platyrhynchos* | Mallard |
| *Anas rubripes* | American Black Duck |
| *Archilochus colubris* | Ruby-throated Hummingbird |
| *Ardea albus* | Great Egret |
| *Ardea herodias* | Great Blue Heron |
| *Bombycilla cedrorum* | Cedar Waxwing |
| *Branta canadensis* | Canada Goose |
| *Bubo virginianus* | Great Horned Owl |
| *Buteo jamaicensis* | Red-tailed Hawk |
| *Buteo platypterus* | Broad-winged Hawk |
| *Calidris melanotos* | Pectoral Sandpiper |
| *Cardinalis cardinalis* | Northern Cardinal |
| *Carduelis tristis* | American Goldfinch |
| *Carthartes aura* | Turkey Vulture |
| *Chaetura pelagica* | Chimney Swift |
| *Charadrius hiaticula* | Semipalmated Plover |
| *Charadrius vociferus* | Killdeer |
| *Chordeiles minor* | Common Nighthawk |
| *Cicus cyaneus* | Northern Harrier+ |
| *Coccyzus americanus* | Yellow-billed Cuckoo |
| *Colaptes auratus* | Northern Flicker |
| *Colinus virginianus* | Northern Bobwhite |
| *Contopus virens* | Eastern Wood Pewee |
| *Corvus brachyrhynchos* | American Crow |
| *Cyanocitta cristata* | Blue Jay |
| *Dumetella carolinensis* | Gray Catbird |
| *Dryocopus pileatus* | Pileated Woodpecker |
| *Empidonax virescens* | Acadian Flycatcher |
| *Falco sparverius* | American Kestrel |
| *Geothlypis trichas* | Common Yellowthroat |
| *Haliaeetus leucocephalus* | Bald Eagle* |
| *Hirundo rustica* | Barn Swallow |
| *Hylocichla mustelina* | Wood Thrush |
| *Icterus galbula* | Baltimore Oriole |
| *Iridoprocne bicolor* | Tree Swallow |
| *Junco hyemalis* | Dark-eyed Junco |

Appendix 1. Fauna List for 1999 Butterfly Survey of SW Pike County, Illinois (continued).

Vertebrates - Birds:

| | |
|---|---|
| *Megaceryle alcyon* | Belted Kingfisher |
| *Melanerpes erythrocephalus* | Red-headed Woodpecker |
| *Melanerpes carolinus* | Red-bellied Woodpecker |
| *Meleagris gallopavo* | Wild Turkey |
| *Melospiza georgiana* | Swamp Sparrow |
| *Melospiza melodia* | Song Sparrow |
| *Myiarchus crinitus* | Great Crested Flycatcher |
| *Oporornis formosus* | Kentucky Warbler |
| *Pandion haliaetus* | Osprey+ |
| *Parula americana* | Northern Parula |
| *Parus atricapillus* | Black-capped Chickadee |
| *Parus bicolor* | Tufted Titmouse |
| *Passerina cyanea* | Indigo Bunting |
| *Picoides villosus* | Hairy Woodpecker |
| *Piranga rubra* | Summer Tanager |
| *Protonotaria citrea* | Prothonotary Warbler |
| *Quiscalus quiscula* | Common Grackle |
| *Riparia riparia* | Bank Swallow |
| *Sayornis phoebe* | Eastern Phoebe |
| *Seiurus motacilla* | Louisiana Waterthrush |
| *Setophaga ruticilla* | American Redstart |
| *Sialia sialis* | Eastern Bluebird |
| *Sitta carolinensis* | White-breasted Nuthatch |
| *Spiza americana* | Dickcissel |
| *Stelgidopteryx ruficollis* | Northern Rough-winged Swallow |
| *Sturnella neglecta* | Western Meadowlark |
| *Sturnus vulgaris* | European Starling |
| *Thryothorus ludovicianus* | Carolina Wren |
| *Toxostoma rufum* | Brown Thrasher |
| *Tyrannus tyrannus* | Eastern Kingbird |
| *Zenaida macroura* | Mourning Dove |

+ State Endangered species
* State Threatened species

Appendix 2. Flora List for 1999 Butterfly Survey of Southwest Pike County, Illinois.

| | |
|---|---|
| *Acer saccharum* | Sugar Maple |
| *Aesculus glabra* | Ohio Buckeye |
| *Agalinis aspera* | Rough False Foxglove |
| *Agalinis purpurea* | Purple False Foxglove |
| *Agalinis skinneriana** | Pale False Foxglove |
| *Amorpha canescens* | Leadplant |
| *Amorpha fruticosa* | False Indigo Bush |
| *Andropogon gerardii* | Big Bluestem |
| *Asarum canadense* | Wild Ginger |
| *Asclepias incarnata* | Swamp Milkweed |
| *Asclepias stenophylla*+ | Narrow-leaved Green Milkweed |
| *Asclepias sullivanti* | Sullivant's (Prairie) Milkweed |
| *Asclepias syriaca* | Common Milkweed |
| *Asclepias tuberosa* | Butterflyweed |
| *Asclepias verticillata* | Whorled Milkweed |
| *Asclepias viridiflora* | Green Milkweed |
| *Asimina triloba* | Paw Paw |
| *Aster ericoides* | Heath Aster |
| *Aster* spp. | asters |
| *Barbarea vulgaris* | Yellow Cress (Yellow Rocket) |
| *Belamcanda chinensis* | Blackberry Lily |
| *Bidens aristosa* | Tickseed Sunflower (Beggarticks, Swamp Marigold) |
| *Bidens* spp. | Beggarticks |
| *Bouteloua curtipendula* | Sideoats Grama |
| *Buchnera americana* | Blue Hearts |
| *Campanula americana* | American Bellflower |
| *Carex* spp. | sedges |
| *Carya ovata* | Shagbark Hickory |
| *Carya tomentosa* | Mockernut Hickory |
| *Cassia marilandica* | Wild Senna |
| *Ceanothus americanus* | New Jersey Tea |
| *Cephalanthus occidentalis* | Buttonbush |
| *Cercis canadensis* | Redbud |
| *Chamaecrista fasciculata* | Partridge Pea |
| *Chenopodium album* | Lamb's Quarters |
| *Cicuta maculata* | Water Hemlock |
| *Cirsium hillii** | Hill's Thistle |
| *Cirsium vulgare* | Bull Thistle |
| *Corallorhiza wisteriana* | Wister's Coralroot Orchid |
| *Cornus drummondii* | Rough-leaved Dogwood |
| *Cornus florida* | Flowering Dogwood |
| *Coronilla varia* | Crown Vetch |
| *Croton capitatus* | Capitate (Sand) Croton |

Appendix 2. Flora List for 1999 Butterfly Survey of Southwest Pike County, Illinois (continued).

| | |
|---|---|
| *Datura stramonium* | Jimson Weed |
| *Daucus carota* | Queen Anne's Lace (Wild Carrot) |
| *Delphinium carolinianum* | Prairie Larkspur |
| *Delphinium tricorne* | Dwarf Larkspur |
| *Desmodium* spp. | tick trefoils |
| *Diospyrus virginiana* | Persimmon |
| *Elephantopus carolinianus* | Elephant's Foot |
| *Eupatorium serotinum* | Late Boneset |
| *Eupatorium sp.* | Boneset (Joe Pye Weed) |
| *Gleditsia triacanthos* | Honey Locust |
| *Gnaphalium obtusifolium* | Cudweed (Sweet Everlasting) |
| *Gymnocladus dioica* | Kentucky Coffee Tree |
| *Helenium autumnale* | Sneezeweed |
| *Helianthus divaricatus* | Woodland Sunflower |
| *Helianthus grosseserratus* | Sawtooth Sunflower |
| *Helianthus* spp. | sunflowers |
| *Humulus lupulus* | Common Hops (Hop Vine) |
| *Hypericum* spp. | St. Johnsworts |
| *Impatiens capensis* | Orange Jewelweed |
| *Impatiens pallida* | Yellow Jewelweed |
| *Juglans nigra* | Black Walnut |
| *Juncus effusus* | Soft Rush |
| *Juniperus virginiana* | Eastern Red Cedar |
| *Kuhnia eupatoroides* | False Boneset |
| *Lactuca biennis* | Tall Blue Lettuce |
| *Laportea canadensis* | Wood Nettle |
| *Lespedeza capitata* | Round-headed Bushclover |
| *Lespedeza violacea* | Violet Bushclover |
| *Liatris pycnostachya* | Tall Gayfeather (Prairie Blazingstar) |
| *Linum sulcatum* | Wild Flax |
| *Lithospermum canescens* | Hoary Puccoon |
| *Lithospermum* spp. | puccoons |
| *Lobelia cardinalis* | Cardinal Flower |
| *Lobelia siphilitica* | Great Blue Lobelia |
| *Lobelia spicata* | Pale Spiked Lobelia |
| *Ludwigia peploides* | Creeping Primrose-willow |
| *Lysimachia quadriflora* | Narrow-leaved (Yellow) Loosestrife |
| *Lythrum alatum* | Winged Loosestrife |
| *Lythrum salicaria* | Purple Loosestrife |
| *Melilotus alba* | White Sweet Clover |
| *Melilotus officinalis* | Yellow Sweet Clover |
| *Mentzelia oligosperma* | Stickleaf |

Appendix 2. Flora List for 1999 Butterfly Survey of Southwest Pike County, Illinois (continued).

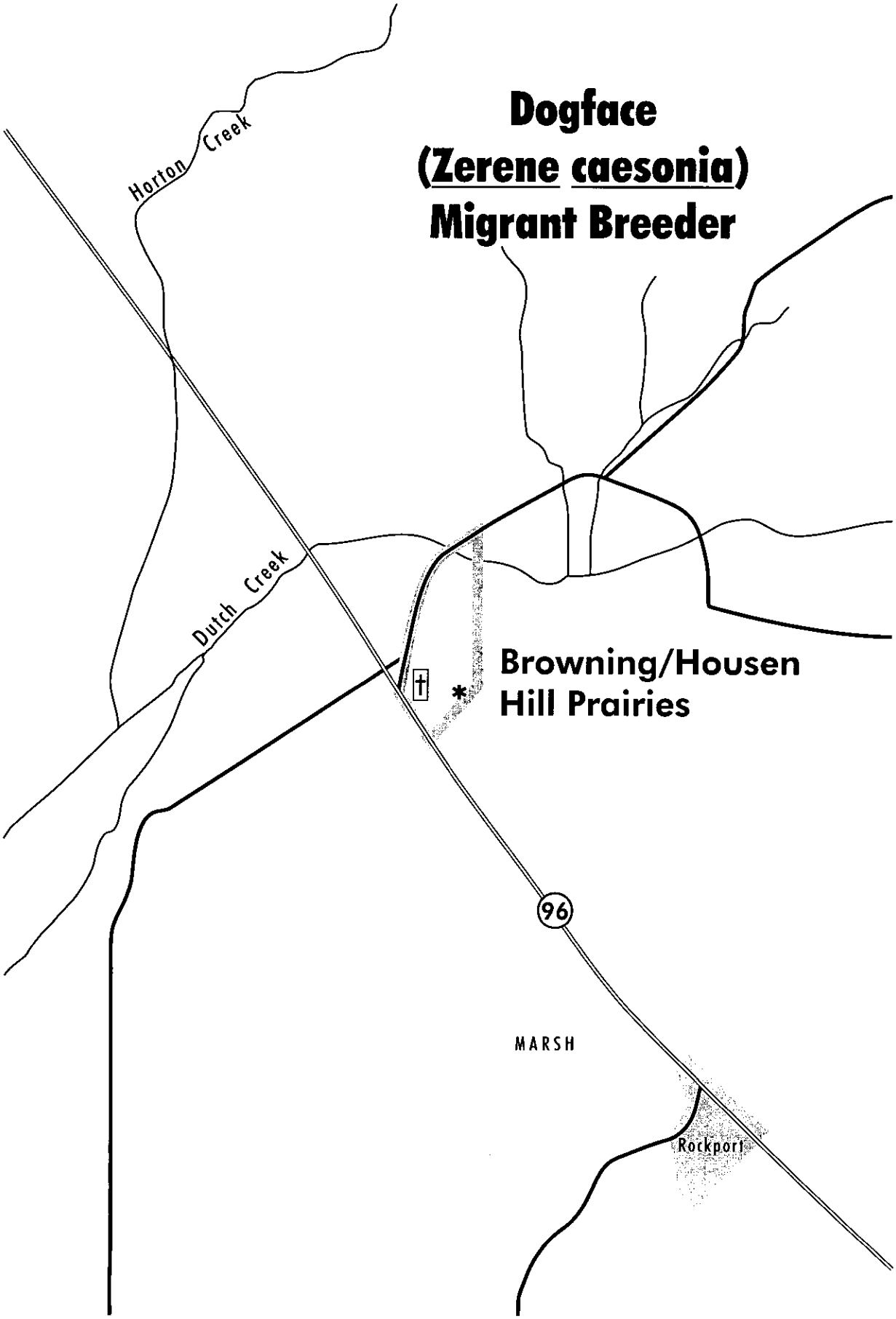
| | |
|---|---|
| *Monarda fistulosa* | Wild Bergamot |
| *Monarda punctata* | Spotted Bee Balm |
| *Nelumbo lutea* | American Lotus |
| *Nepetea cataria* | Catnip |
| *Opuntia humifusa* | Prickly Pear Cactus |
| *Ostrya virginiana* | Hop Hornbeam |
| *Oxalis violacea* | Violet Wood Sorrel |
| *Penstemon pallidus* | Pale Beardstongue |
| *Petalostemon* spp. | prairie clovers |
| *Physostegia virginianum* | Obedient Plant (False Dragonhead) |
| *Plantago major* | Common Plantain |
| *Platanus occidentalis* | Sycamore |
| *Polygonum hydropiperoides* | Mild Water Pepper (Smartweed) |
| *Polygonum lapathifolium* | Nodding White Smartweed |
| *Polygonum pensylvanicum* | Pennsylvania Smartweed |
| *Polygonum virginianum* | Woodland (Virginia) Knotweed |
| *Populus deltoides* | Eastern Cottonwood |
| *Psoralea tenuiflora* | Scurf Pea |
| *Pycnanthemum* spp. | mountain mints |
| *Pycnanthemum virginianum* | Virginia Mountain Mint |
| *Quercus alba* | White Oak |
| *Quercus macrocarpa* | Bur Oak |
| *Quercus muhlenbergii* | Chinquapin Oak |
| *Quercus rubra* | Red Oak |
| *Quercus velutina* | Black Oak |
| *Ratibida pinnata* | Gray-headed (Yellow) Coneflower |
| *Rhus aromatica* | Fragrant Sumac |
| *Rhus glabra* | Smooth Sumac |
| *Robinia pseudoacacia* | Black Locust |
| *Rubus allegheniensis* | Common Blackberry |
| *Rudbeckia hirta* | Black-eyed Susan |
| *Rudbeckia subtomentosa* | Sweet Black-eyed Susan |
| *Ruellia humilis* | Wild Petunia |
| *Sabatia angularis* | Rose Pink |
| *Sagittaria calycina* | Arrowleaf |
| *Salix nigra* | Black Willow |
| *Salix* spp. | willows |
| *Sassafras albidum* | Sassafras |
| *Schizachyrium scoparium* | Little Bluestem |
| *Silphium perfoliatum* | Cup Plant |
| *Sisyrinchium* spp. | blue-eyed grasses |
| *Solidago canadensis* | Canada Goldenrod |

Appendix 2. Flora List for 1999 Butterfly Survey of Southwest Pike County, Illinois (continued).

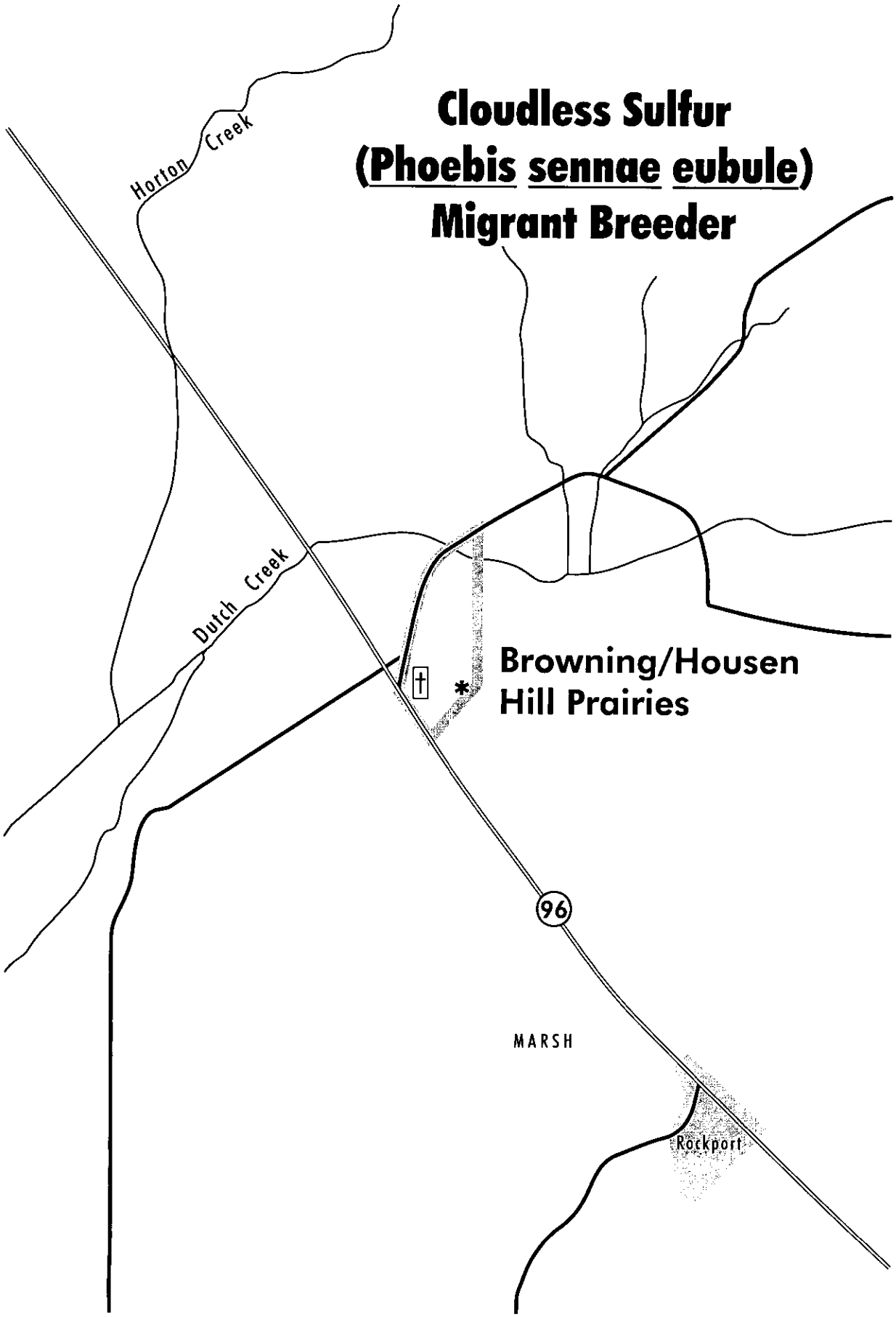
| | |
|---|---|
| *Solidago nemoralis* | Old Field Goldenrod |
| *Solidago speciosa* | Showy Goldenrod |
| *Solidago ulmifolia* | Elm-leaved Goldenrod |
| *Spiranthes magnicamporum* | Ladies' Tresses |
| *Stachys tenuifolia* | Smooth Hedge Nettle |
| *Taenidia integerrima* | Yellow Pimpernel |
| *Teucrium canadense* | Germander |
| *Tilia americana* | Basswood |
| *Tradescantia ohiensis* | Ohio (Common) Spiderwort |
| *Trifolium pratense* | Red Clover |
| *Trifolium repens* | White Clover |
| *Triosteum perfoliatum* | Late Horse Gentian |
| *Ulmus rubra* | Slippery (Red) Elm |
| *Urtica dioica* | Stinging Nettle |
| *Verbena hastata* | Blue Vervain |
| *Verbena stricta* | Hoary Vervain |
| *Vernonia* spp. | ironweeds |
| *Viola* spp. | violets |
| *Vitis* spp. | grapes |
| *Zinnia elegans* | Garden Zinnia |

+ Illinois State Endangered plant species.
* Illinois State Threatened plant species.

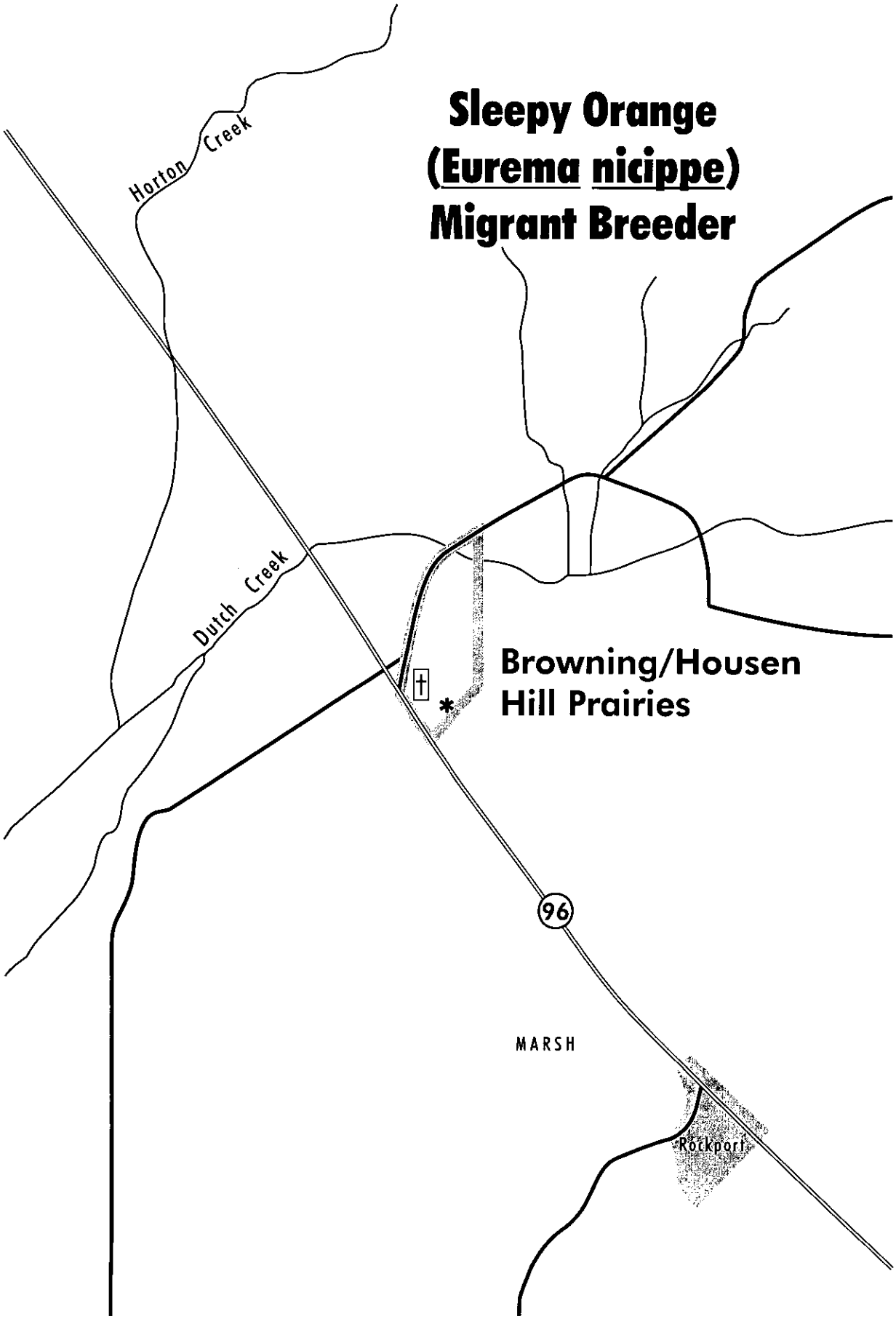
# Dogface
# (Zerene caesonia)
# Migrant Breeder



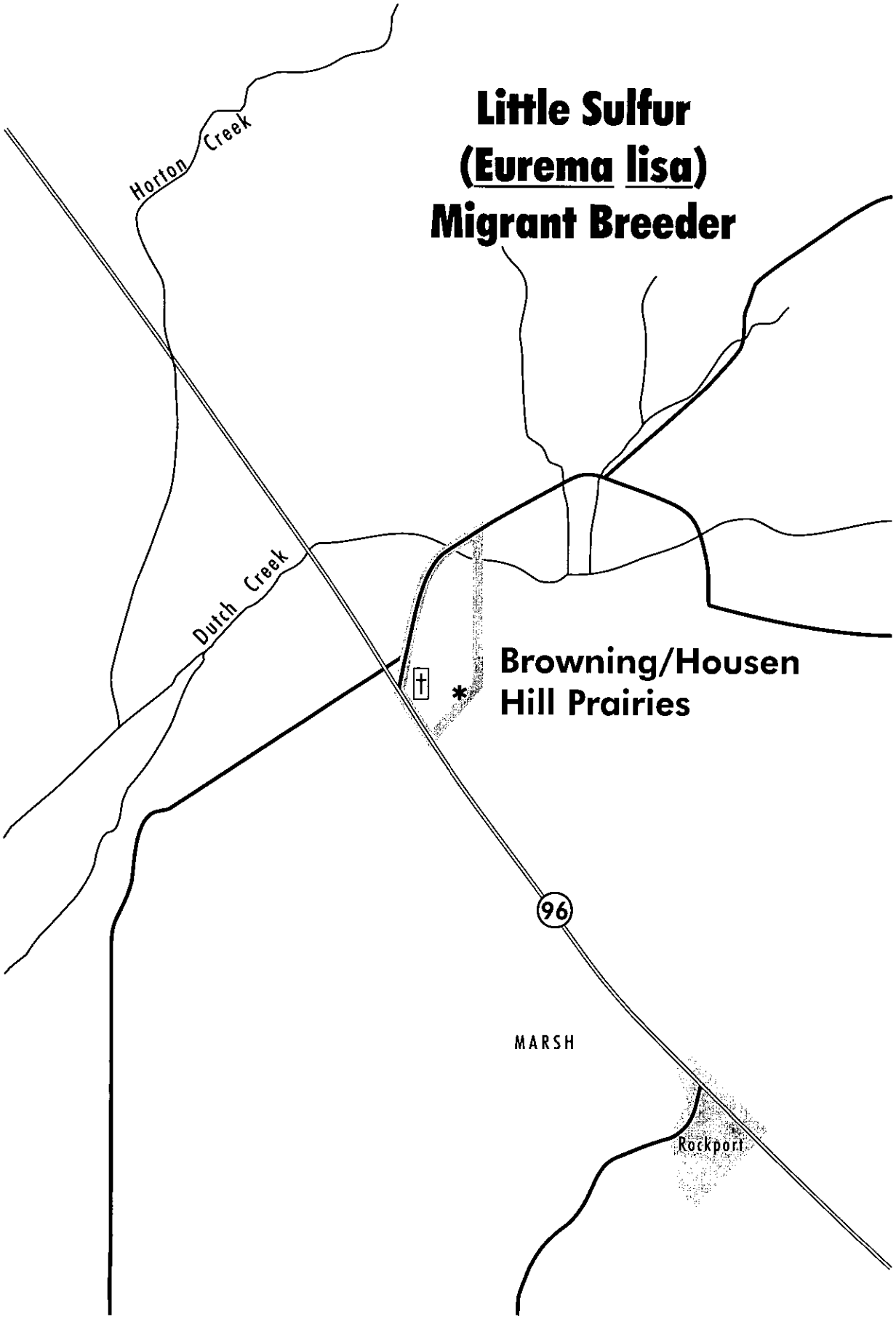
# Cloudless Sulfur
# (Phoebis sennae eubule)
# Migrant Breeder



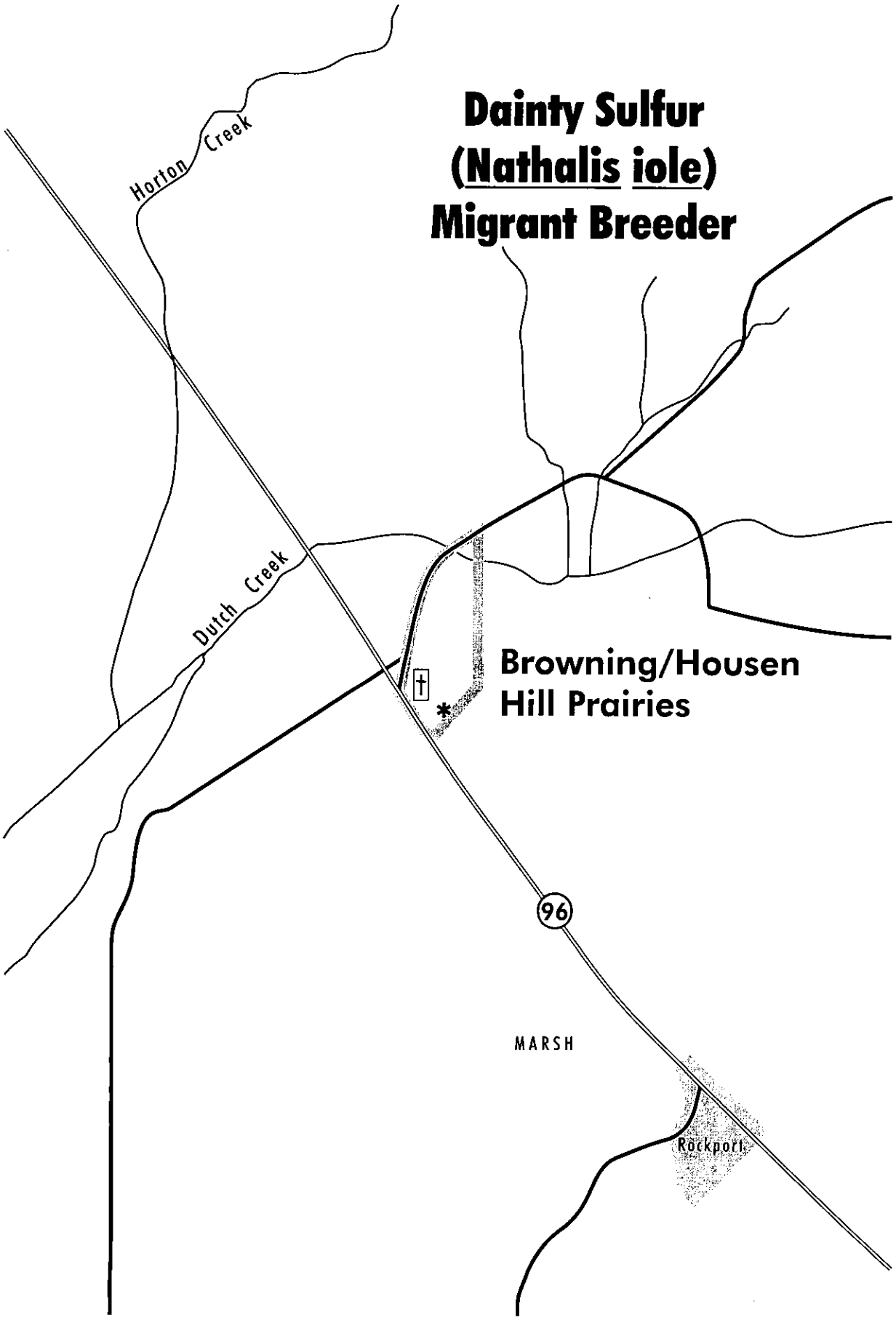
# Sleepy Orange (Eurema nicippe) Migrant Breeder



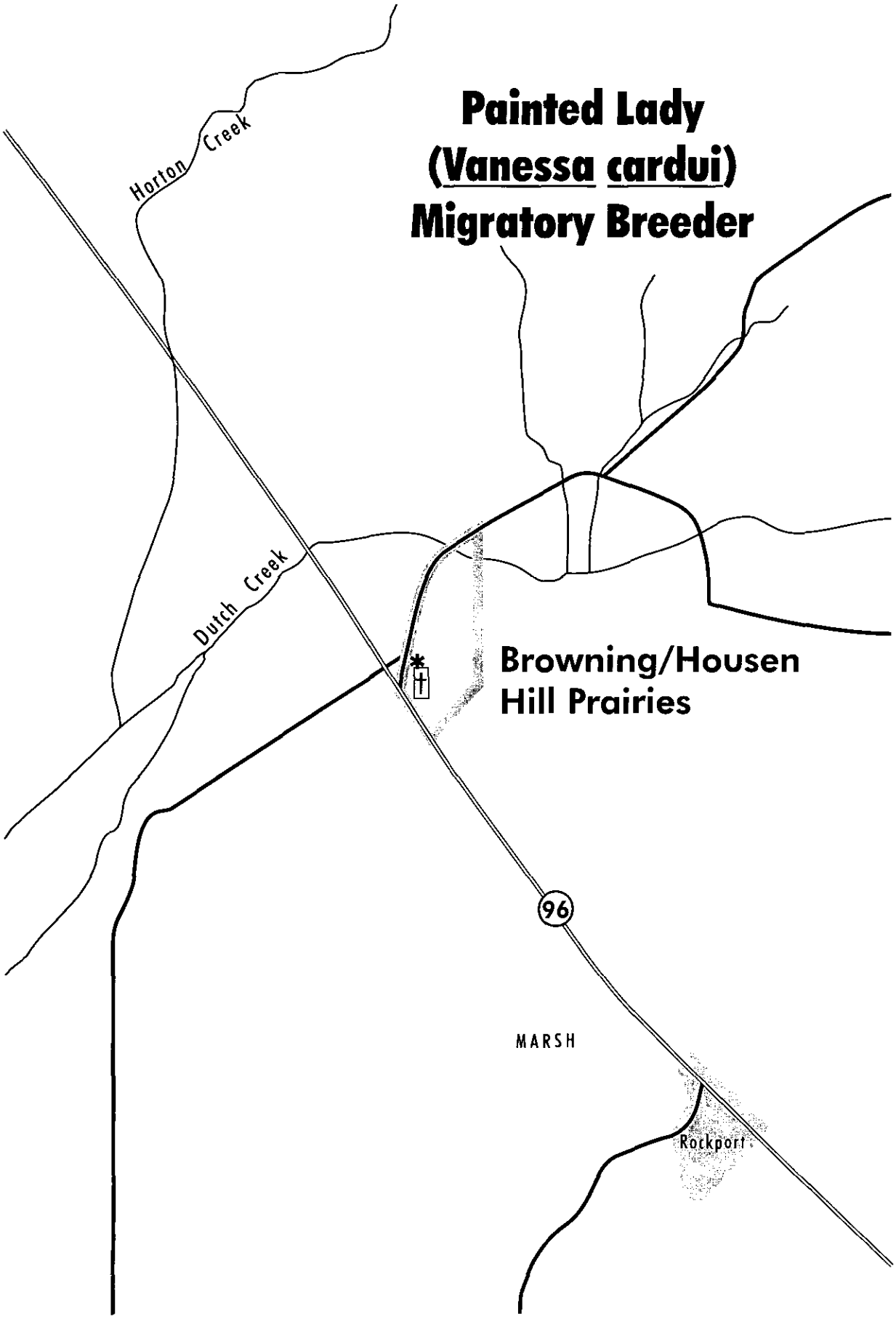
# Little Sulfur
# (Eurema lisa)
# Migrant Breeder



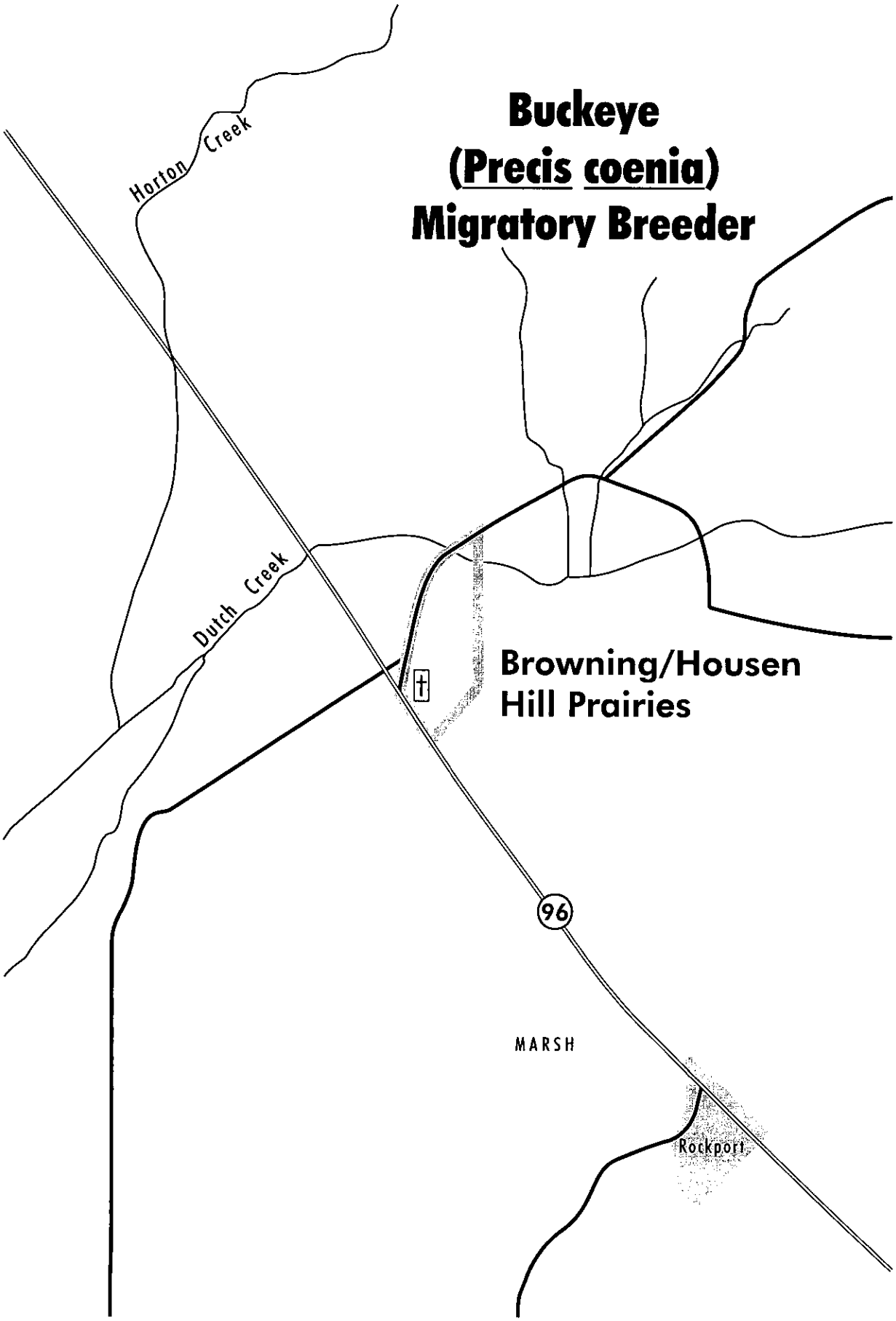
# Dainty Sulfur
# (Nathalis iole)
# Migrant Breeder



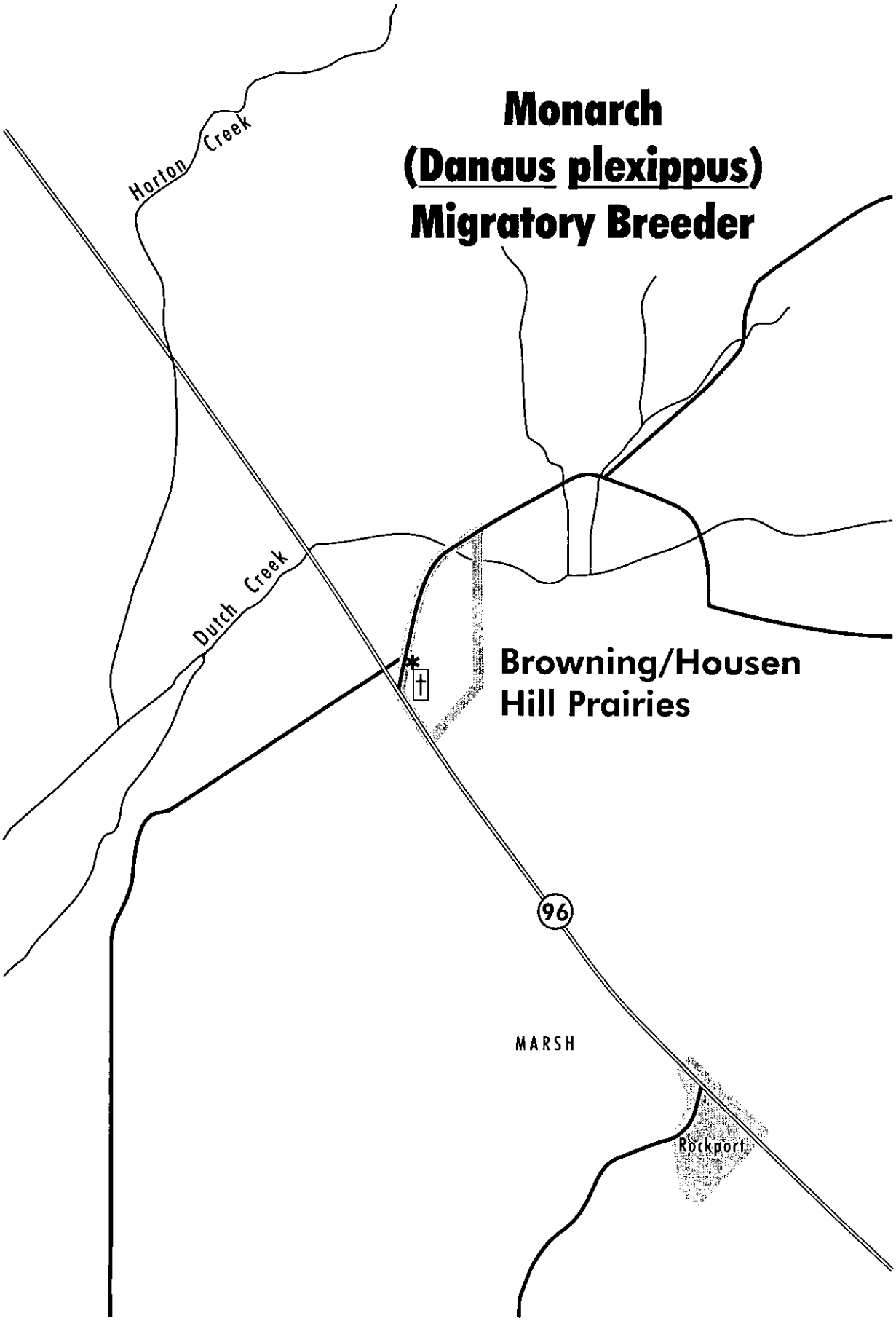
# Painted Lady
# (Vanessa cardui)
# Migratory Breeder



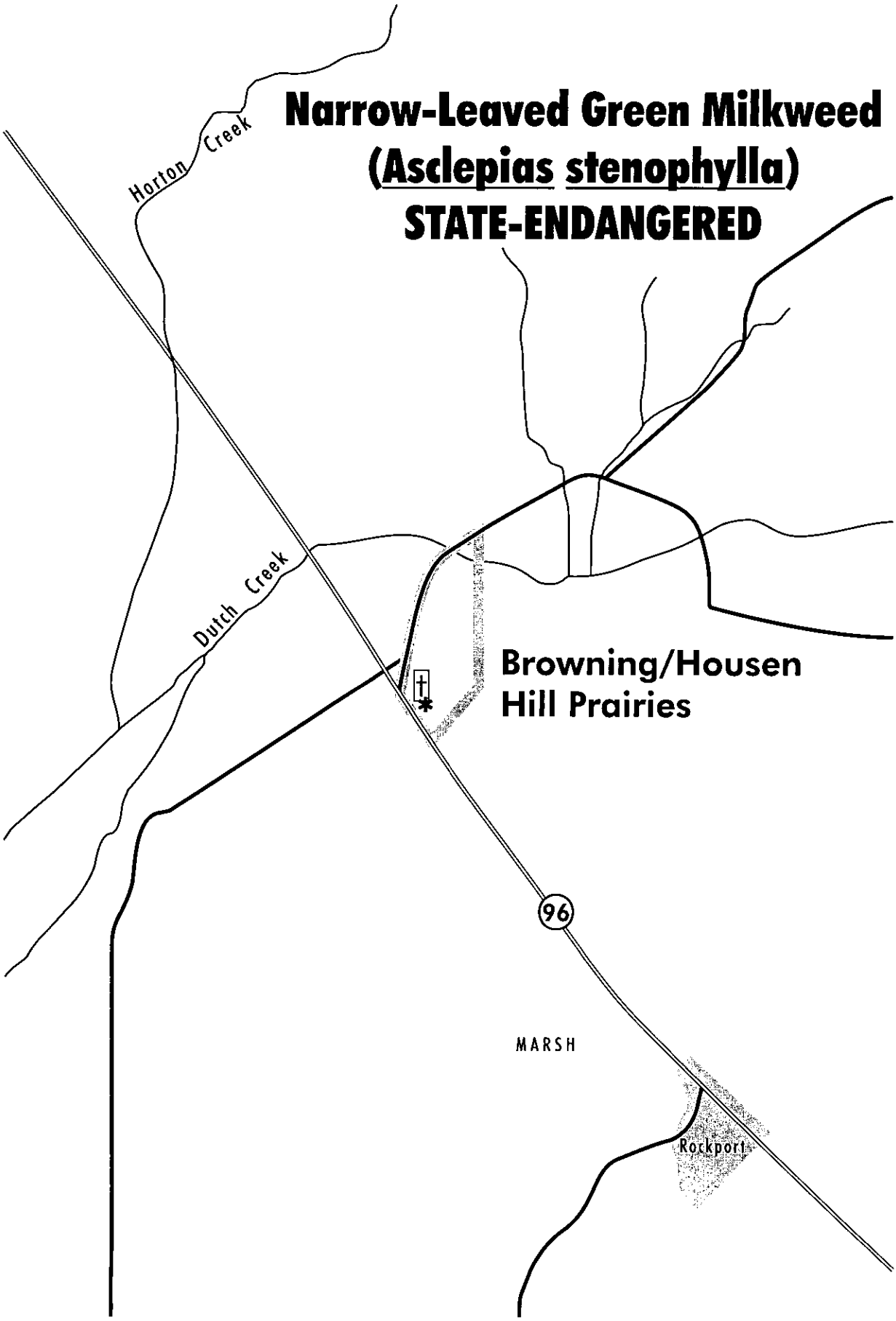
# Buckeye
# (Precis coenia)
# Migratory Breeder

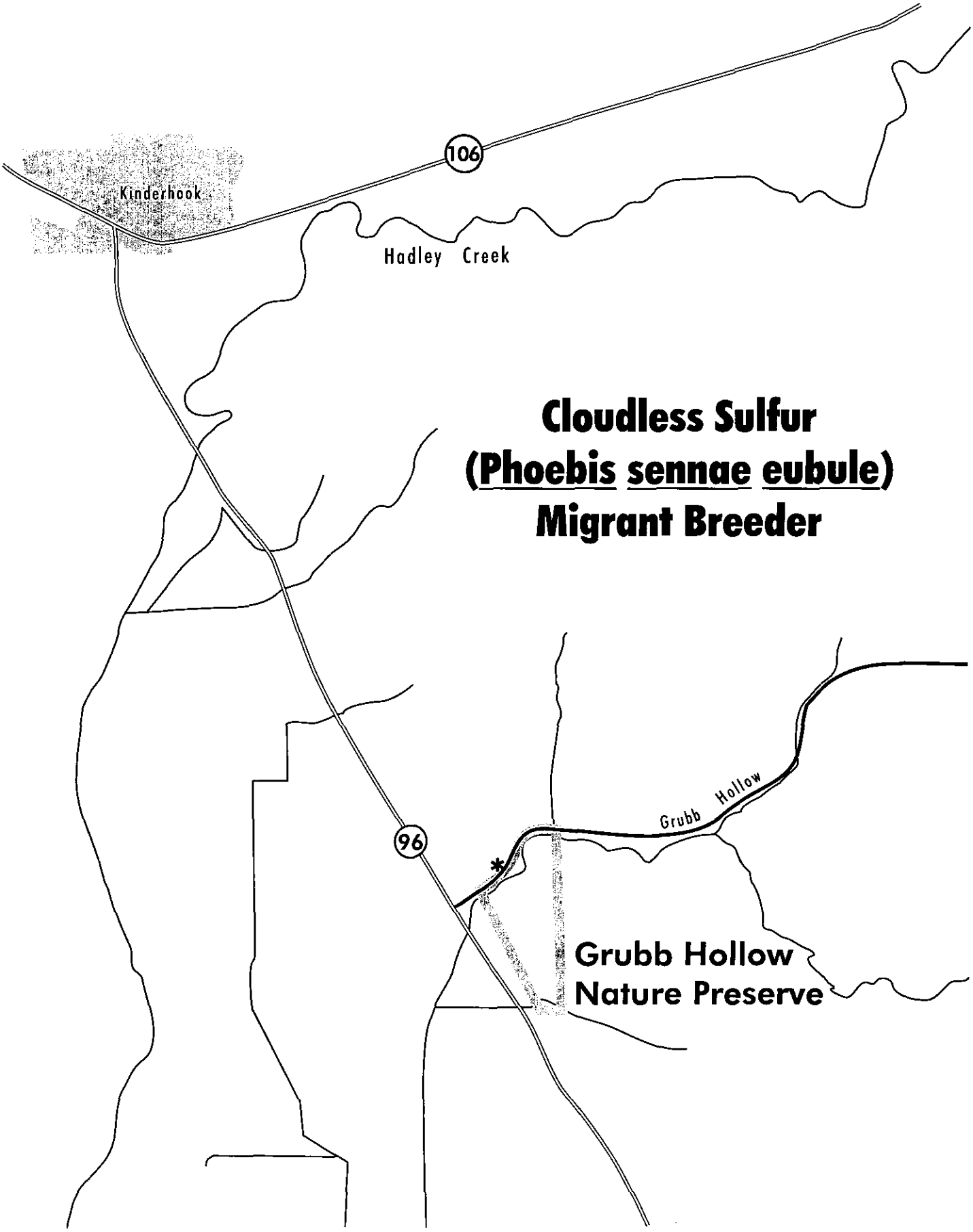


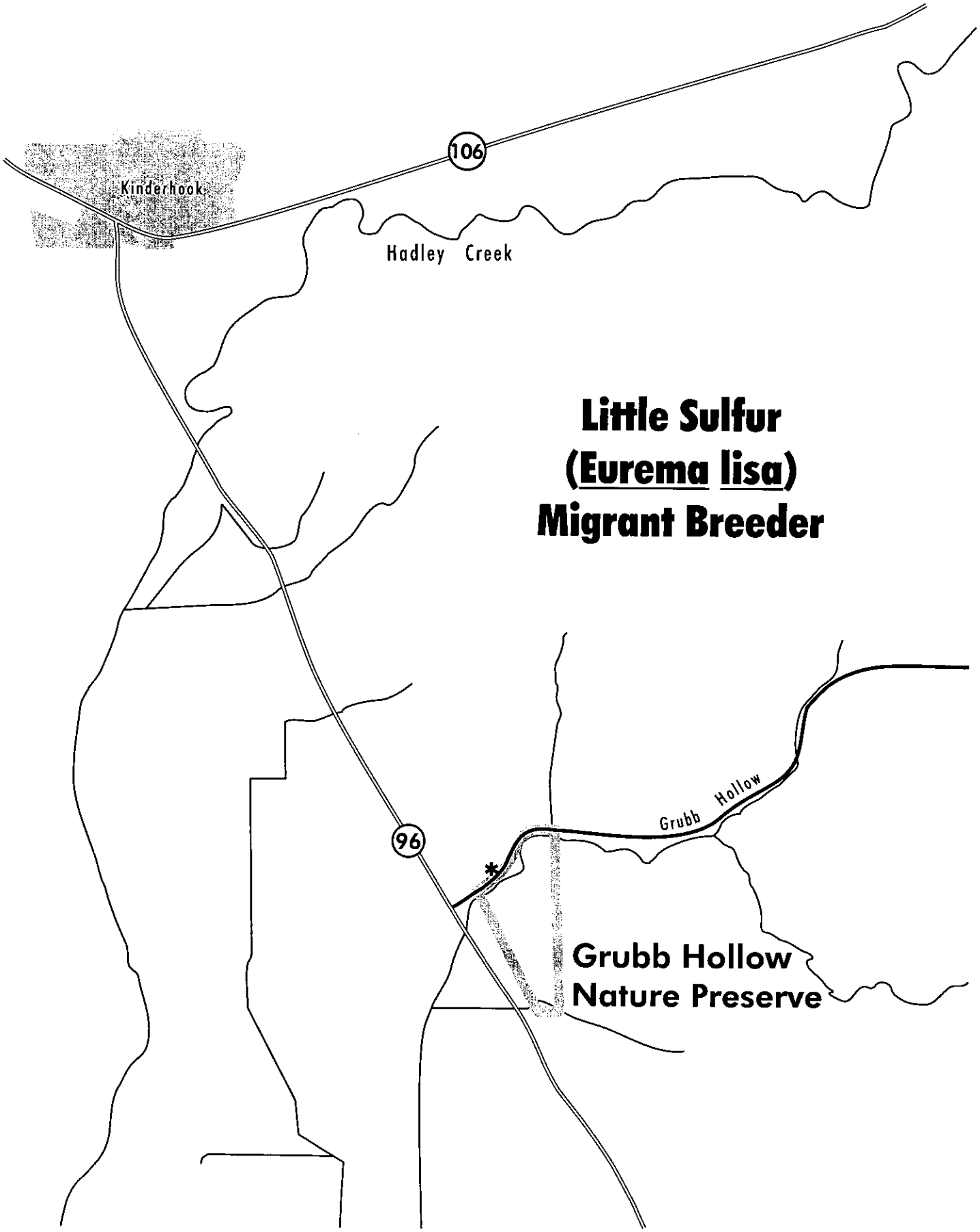
# Monarch
# (Danaus plexippus)
# Migratory Breeder

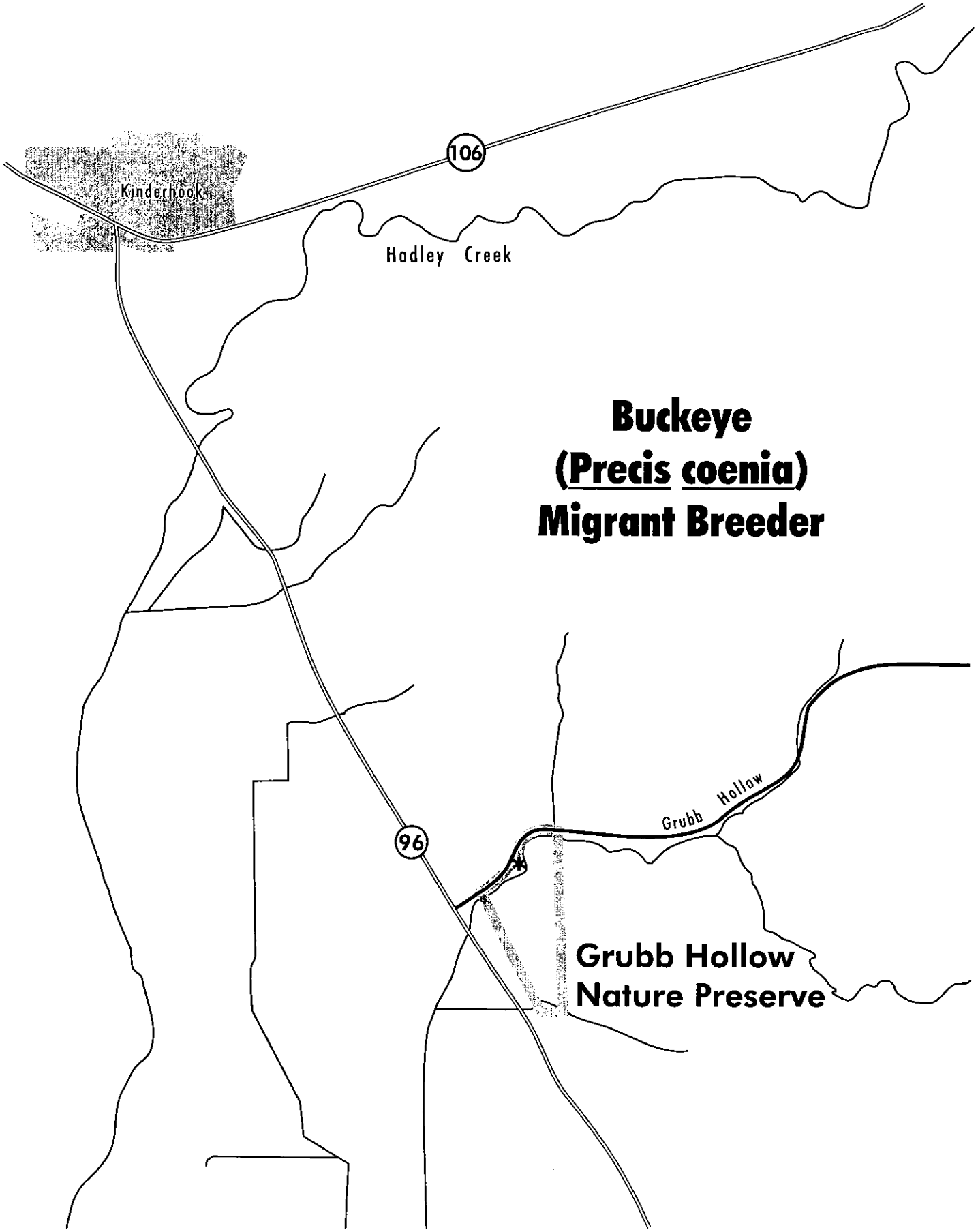


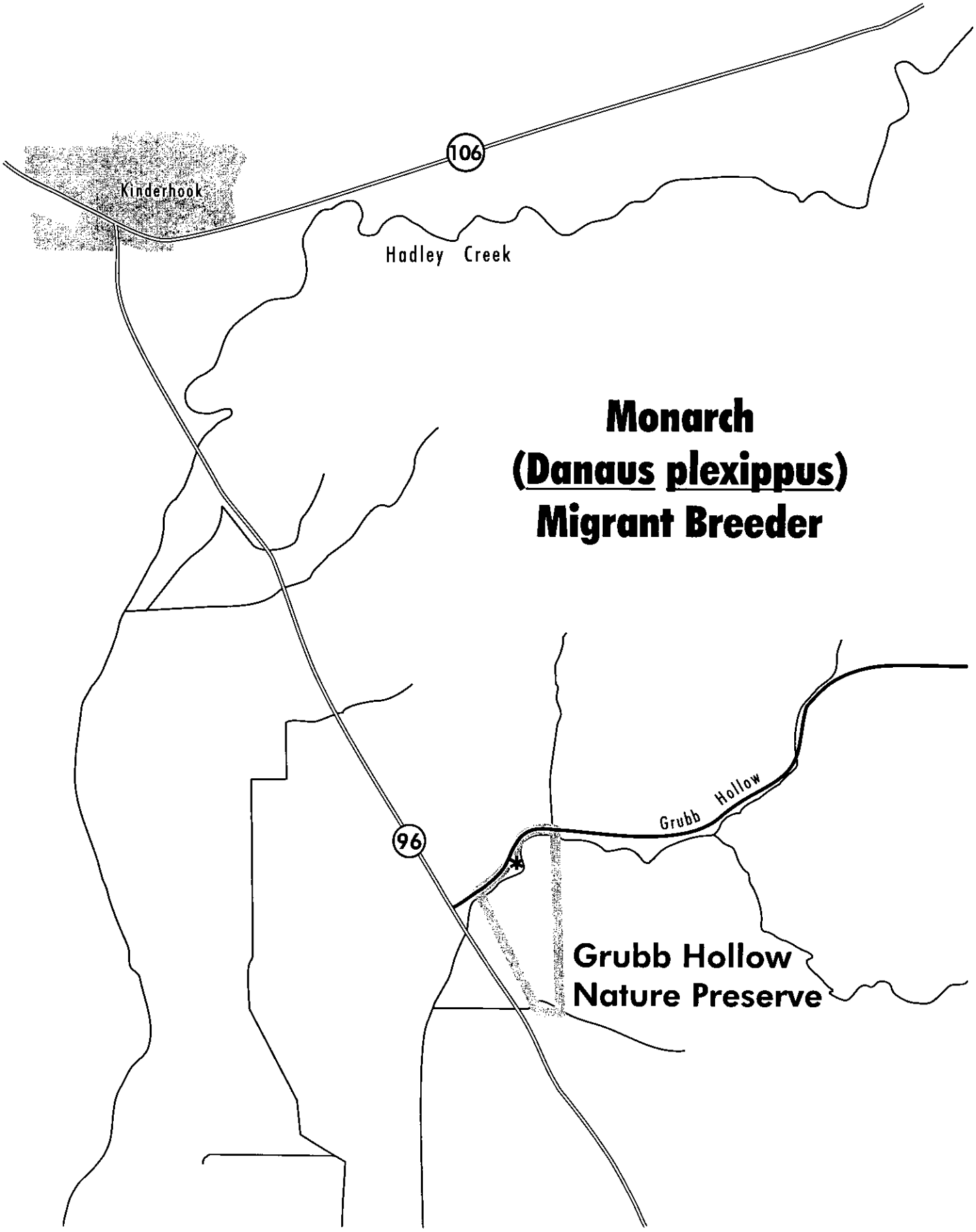
# Narrow-Leaved Green Milkweed
# (Asclepias stenophylla)
# STATE-ENDANGERED



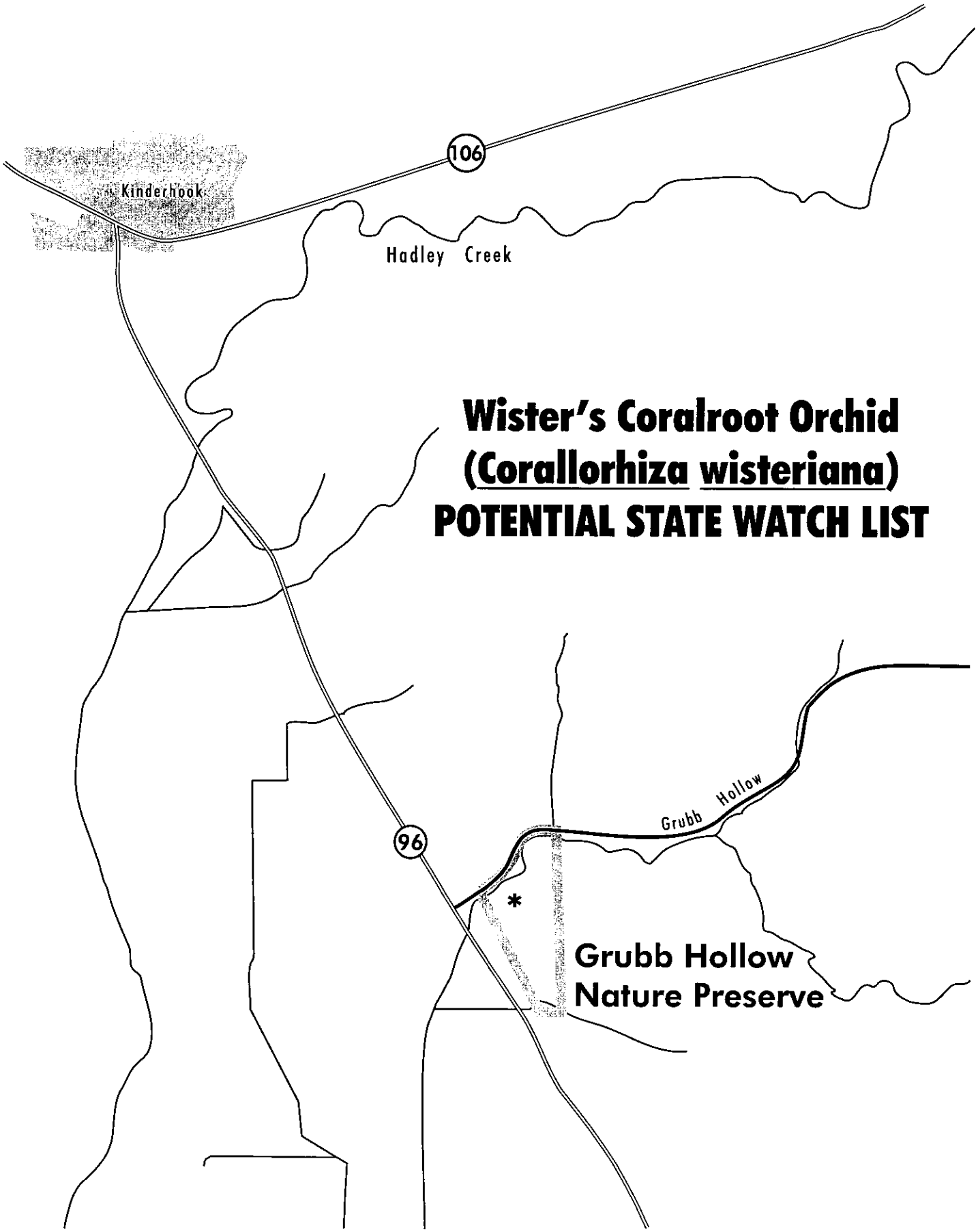

106
Kinderhook
Hadley Creek
Cloudless Sulfur
(Phoebis sennae eubule)
Migrant Breeder
Grubb Hollow
96
*
Grubb Hollow
Nature Preserve

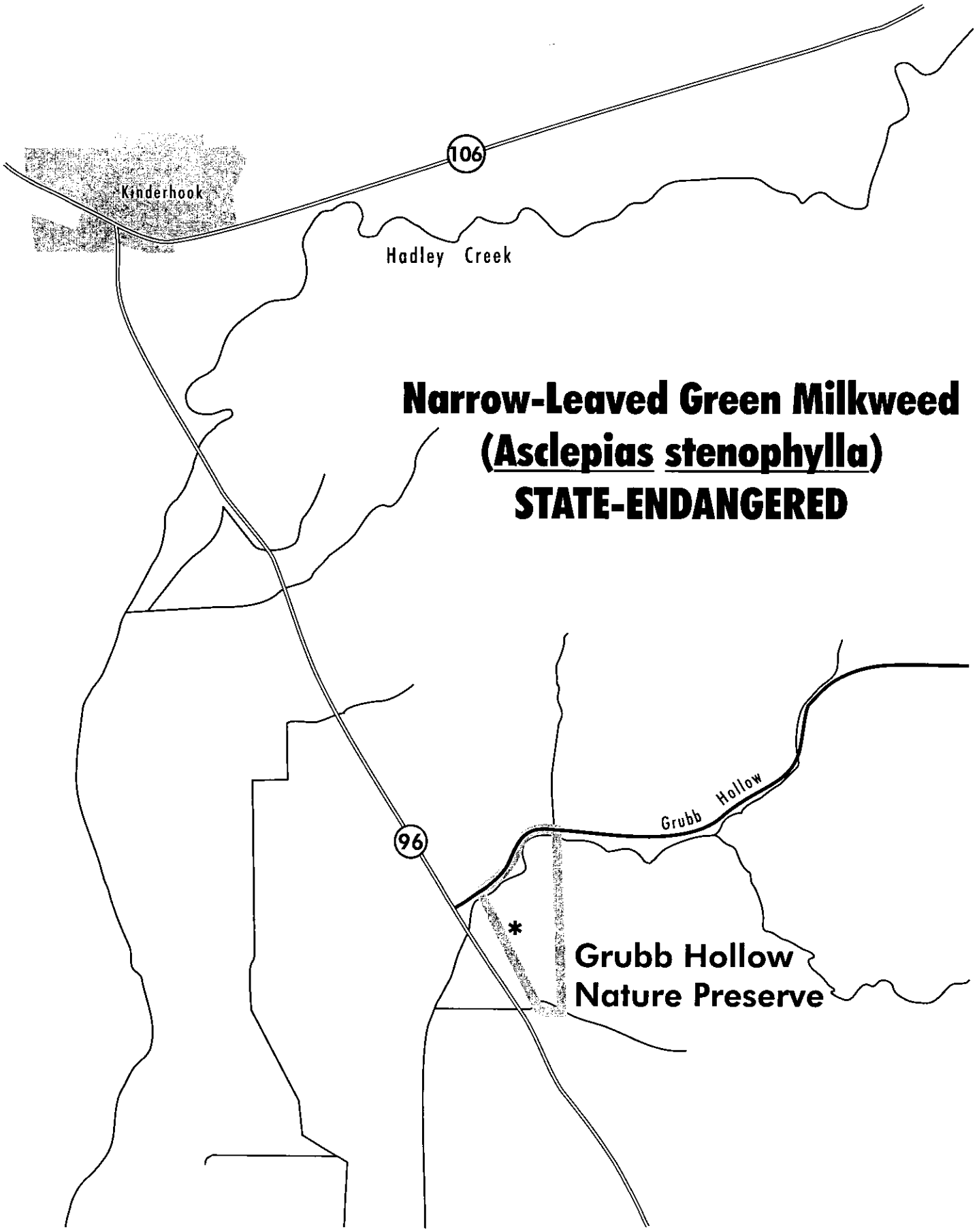

Kinderhook
106
Hadley Creek
Little Sulfur
(Eurema lisa)
Migrant Breeder
Grubb Hollow
96
*
Grubb Hollow
Nature Preserve


106
Kinderhook
Hadley Creek
Buckeye
(Precis coenia)
Migrant Breeder
Grubb Hollow
96
Grubb Hollow
Nature Preserve


Kinderhook
106
Hadley Creek
Monarch
(Danaus plexippus)
Migrant Breeder
Grubb Hollow
96
Grubb Hollow
Nature Preserve

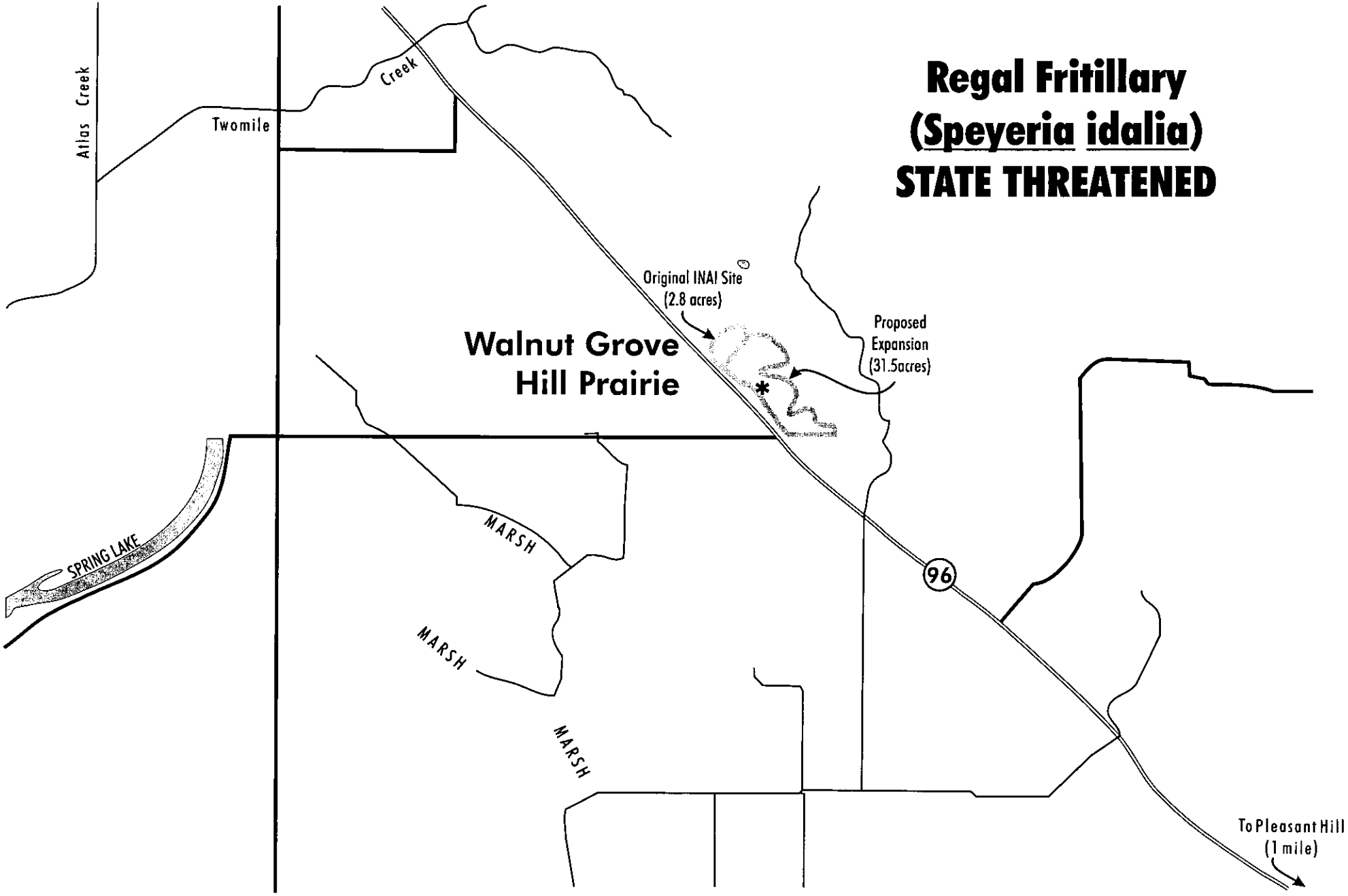
# Wister's Coralroot Orchid
# (Corallorhiza wisteriana)
# POTENTIAL STATE WATCH LIST



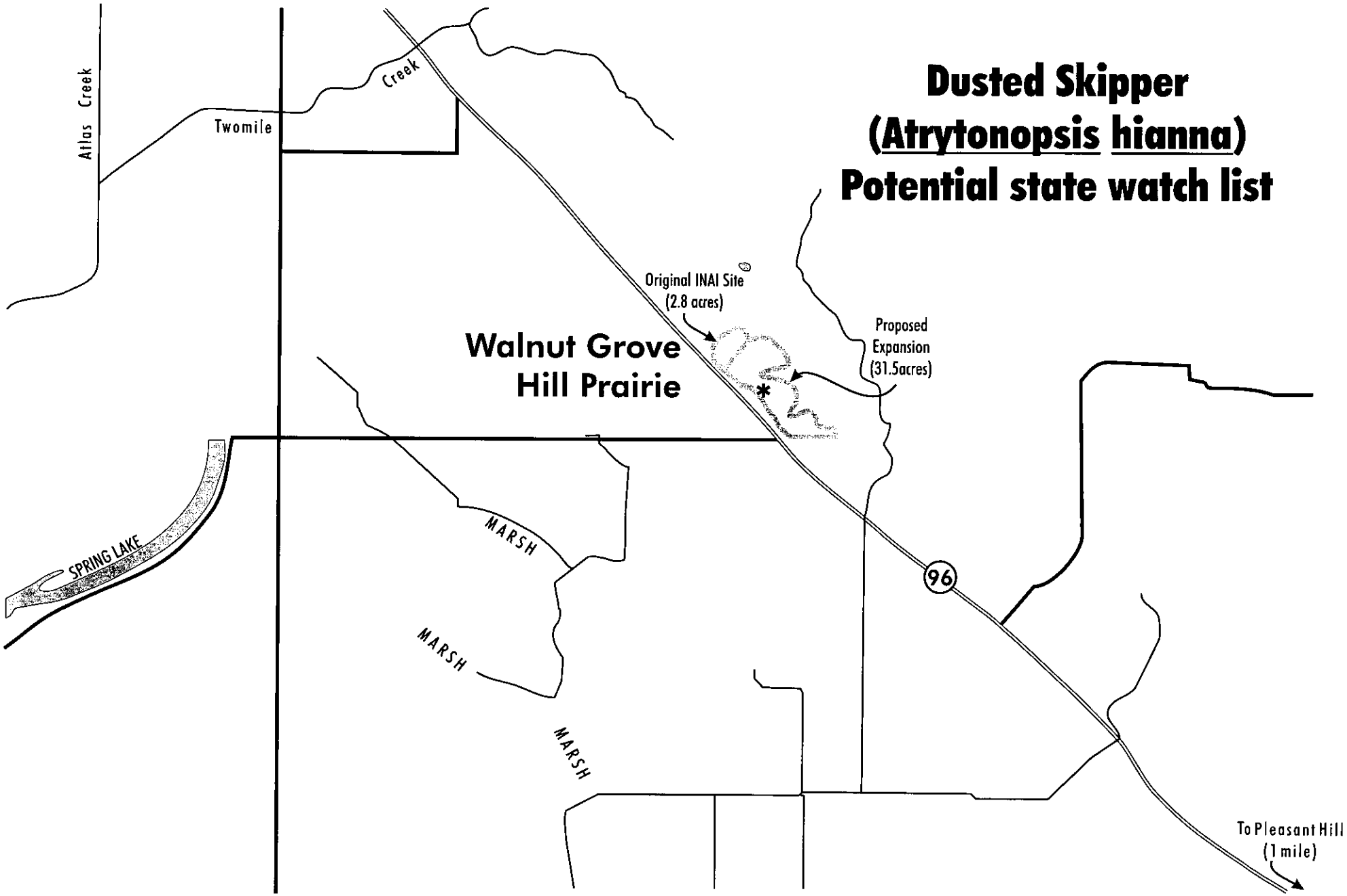



# Narrow-Leaved Green Milkweed
# (Asclepias stenophylla)
# STATE-ENDANGERED

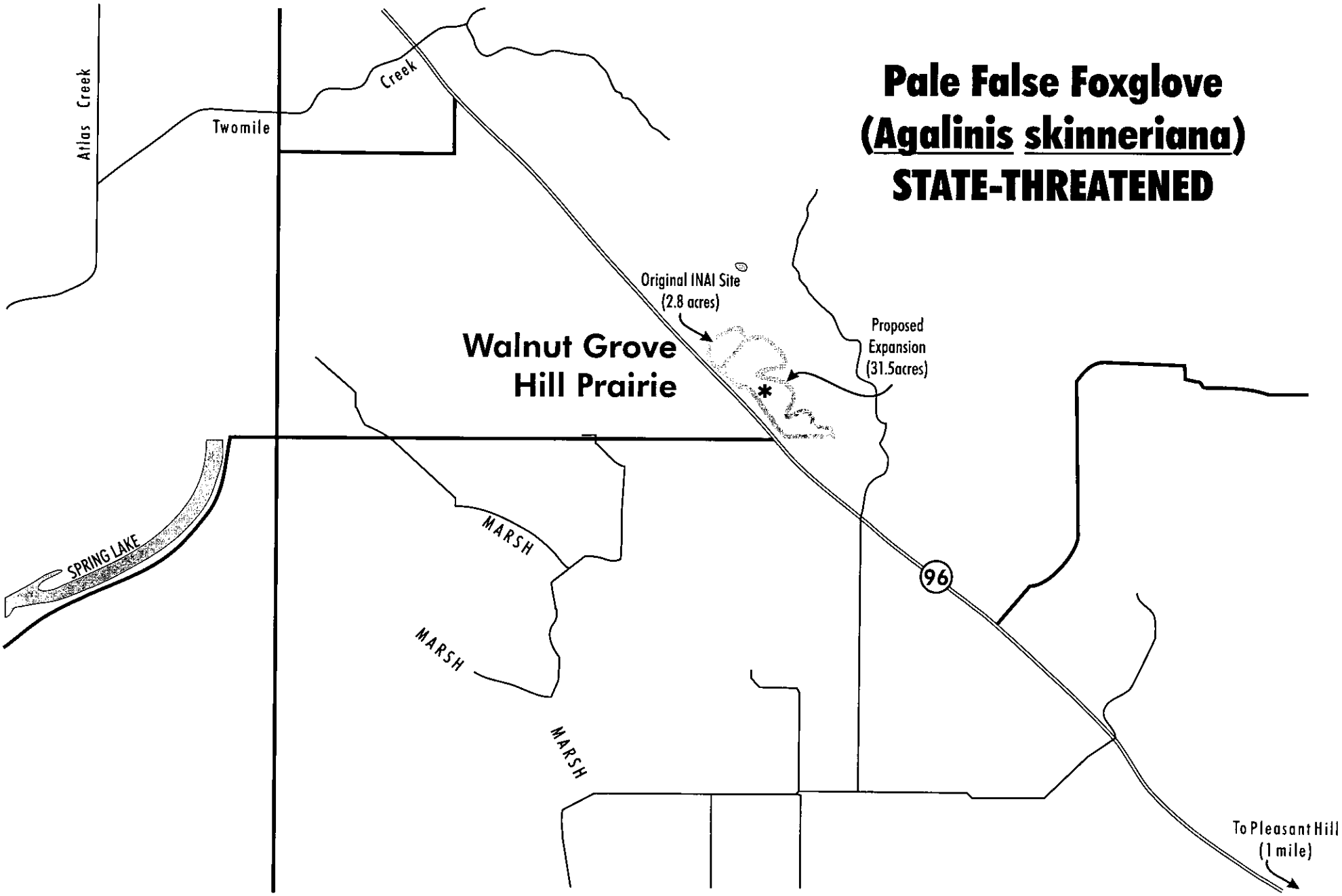
# Regal Fritillary
# (Speyeria idalia)
# STATE THREATENED



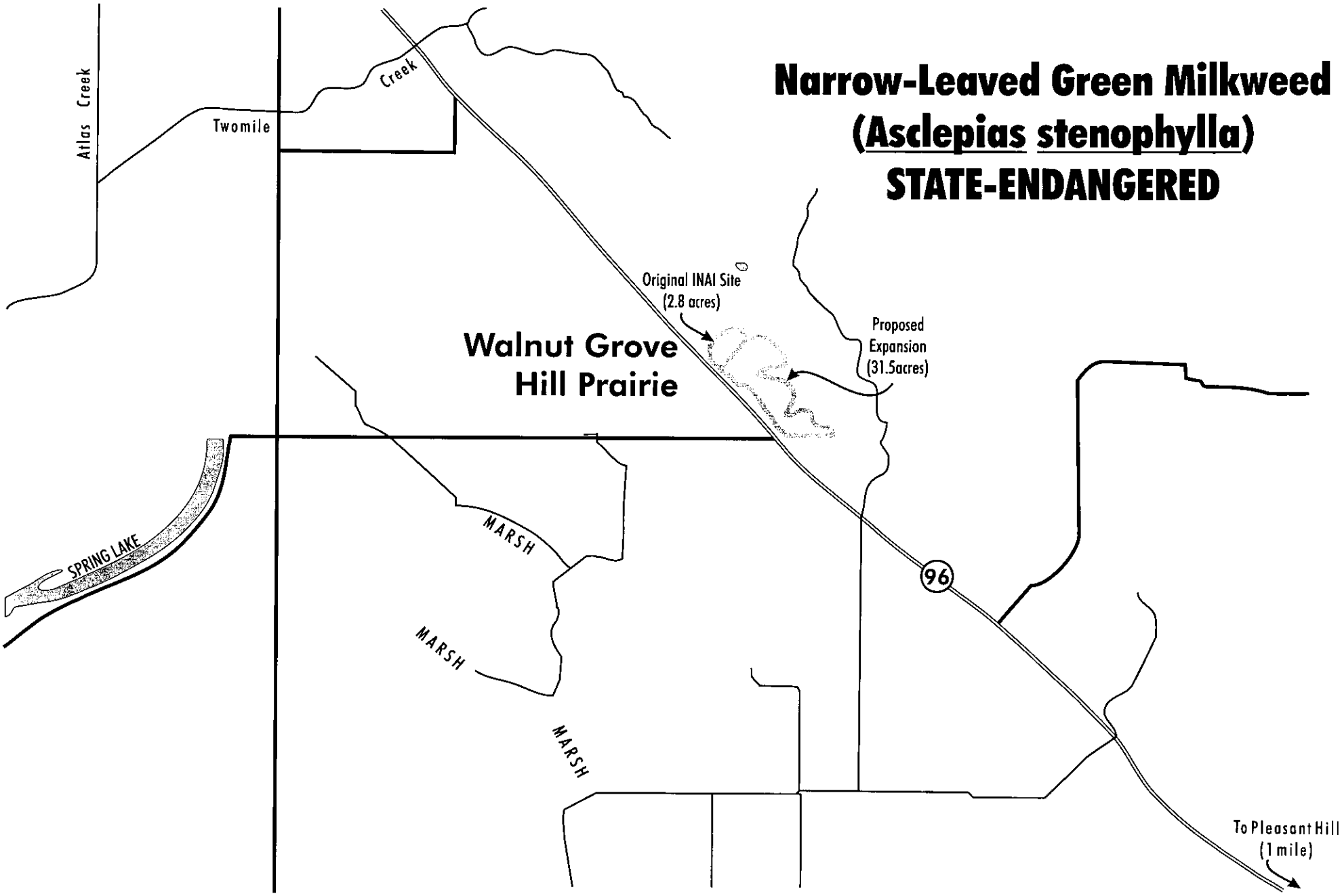
# Dusted Skipper
# (Atrytonopsis hianna)
# Potential state watch list



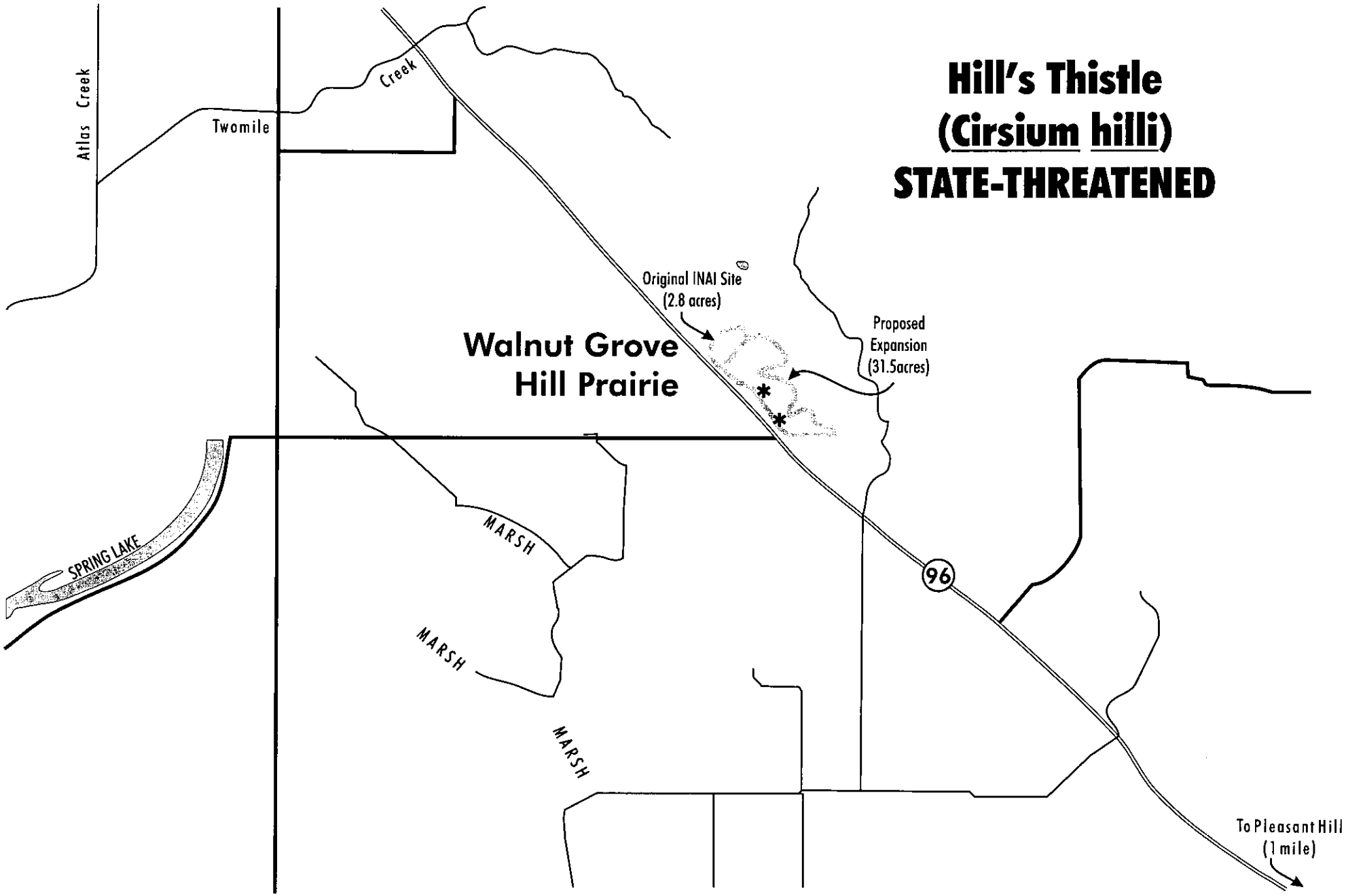
# Pale False Foxglove
# (Agalinis skinneriana)
# STATE-THREATENED



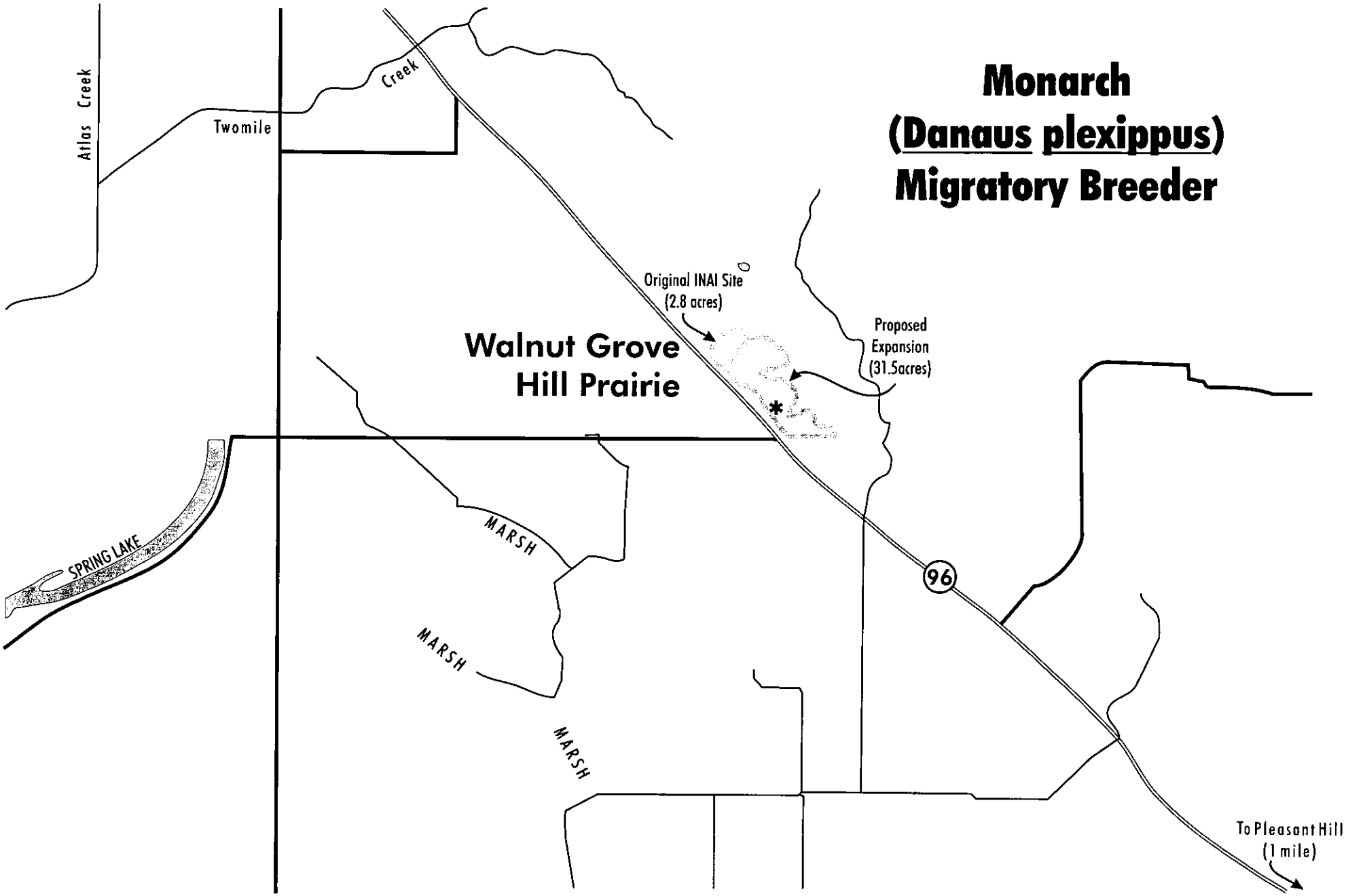
# Narrow-Leaved Green Milkweed
# (Asclepias stenophylla)
# STATE-ENDANGERED



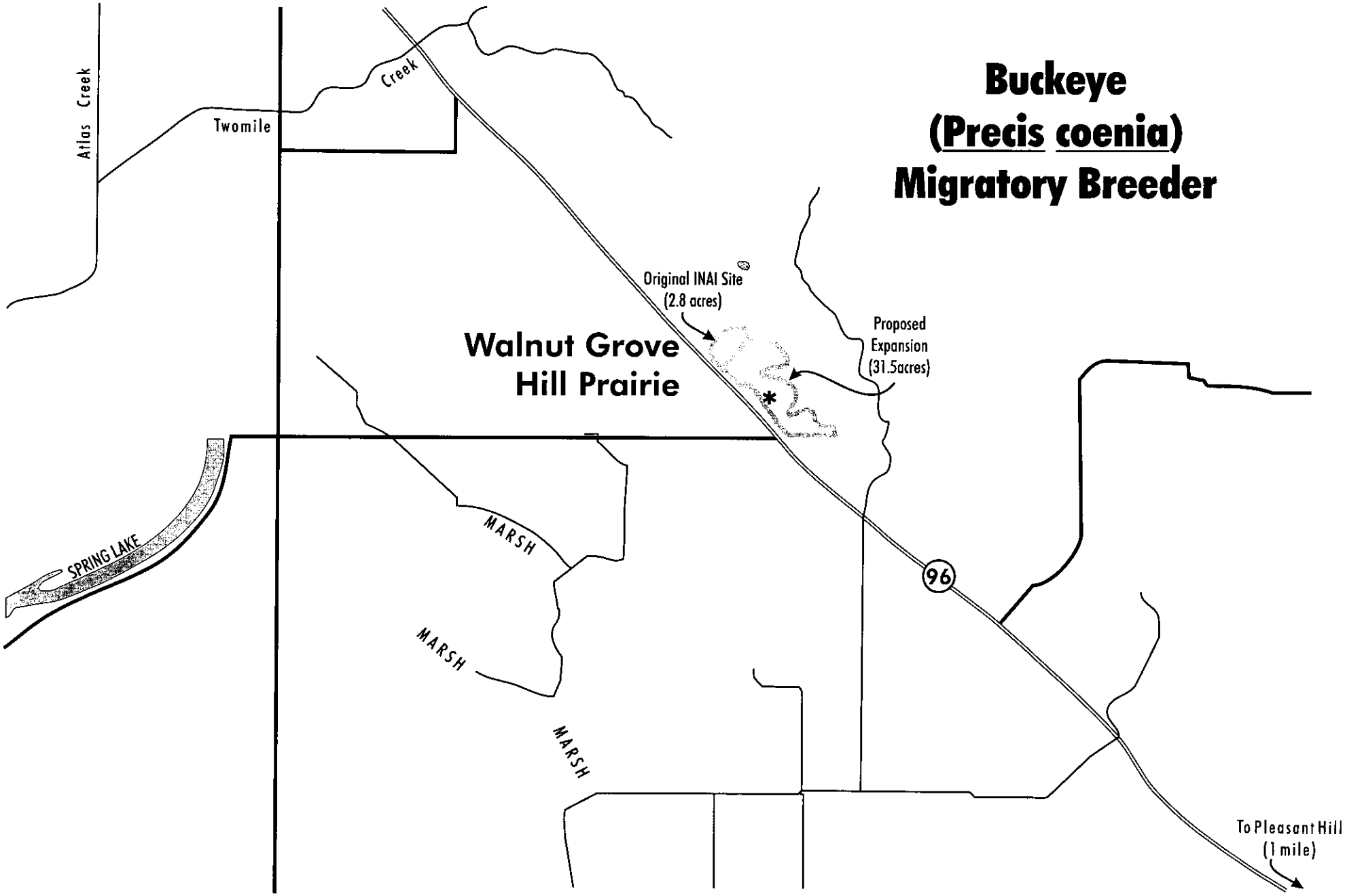
# Hill's Thistle
# (Cirsium hilli)
# STATE-THREATENED



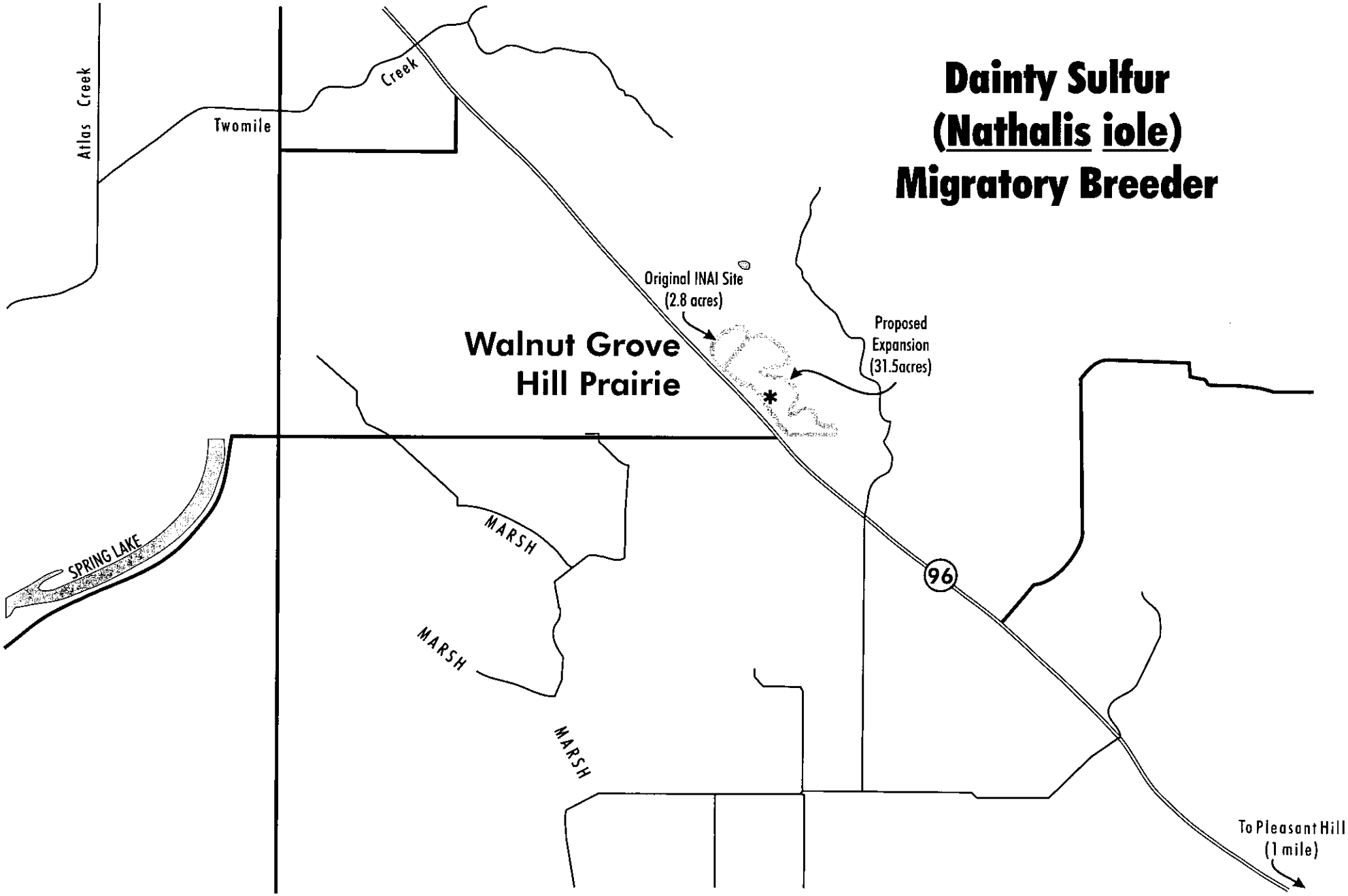
# Monarch
# (Danaus plexippus)
# Migratory Breeder



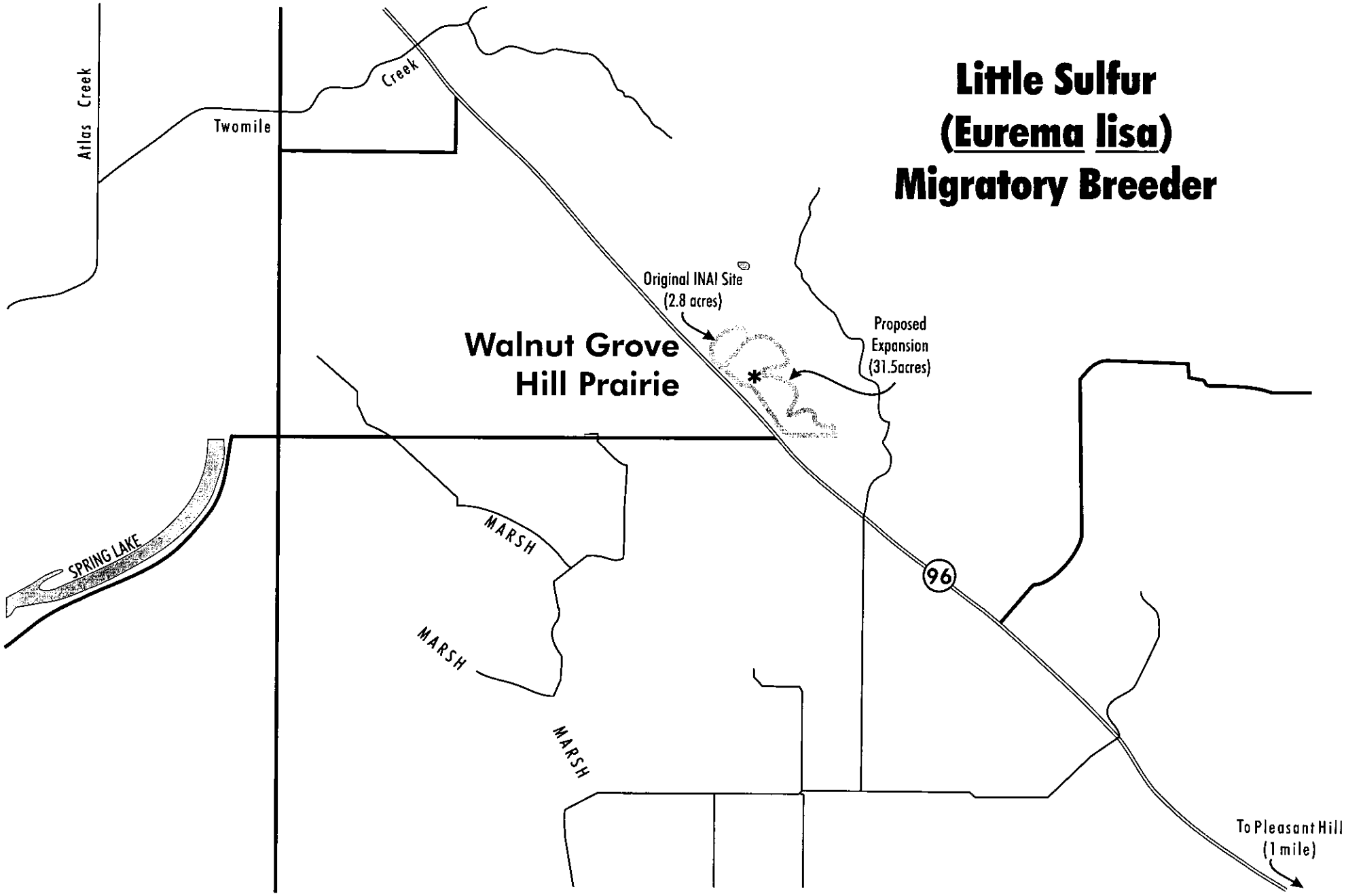
# Buckeye
# (Precis coenia)
# Migratory Breeder



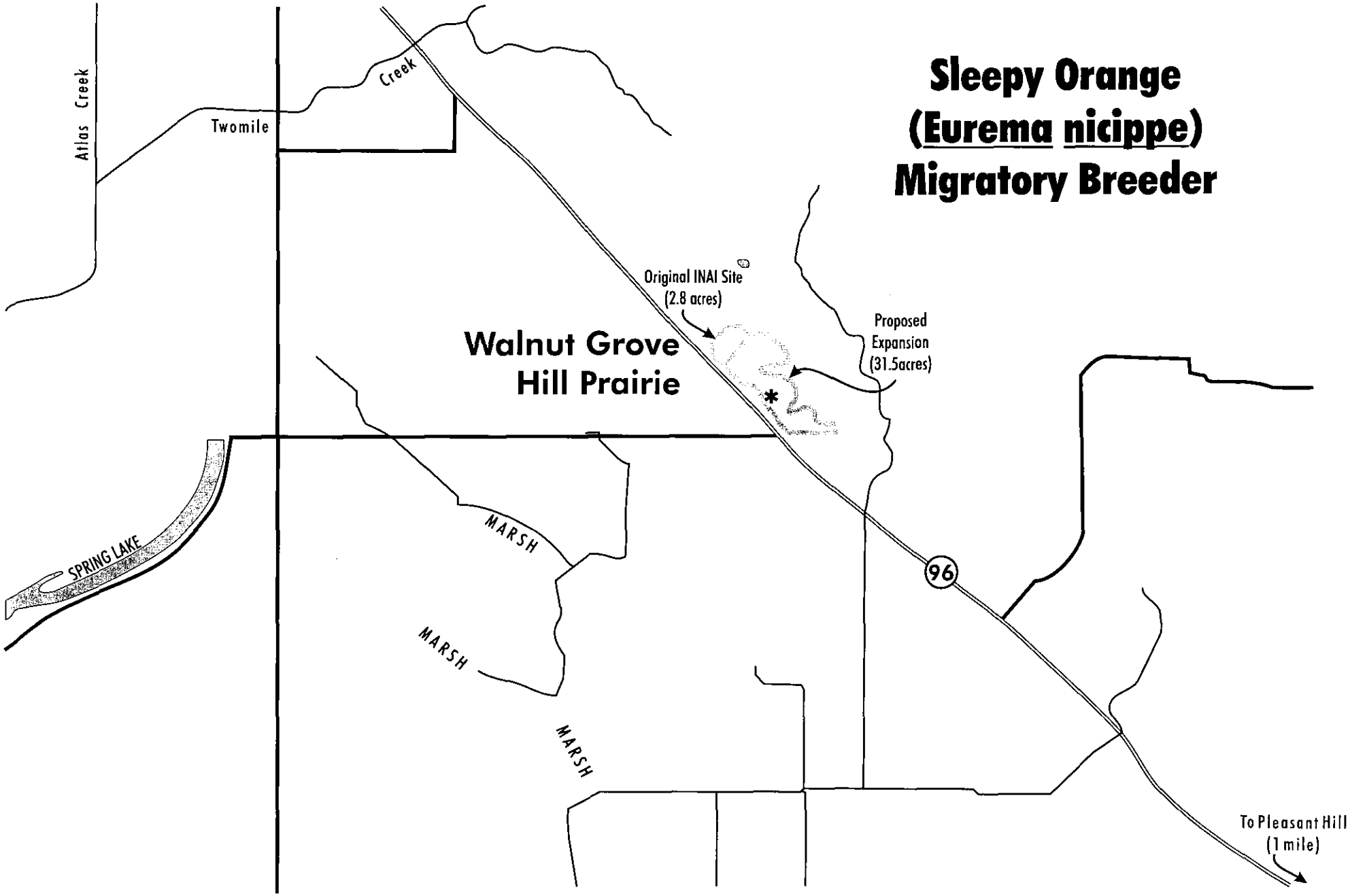
# Dainty Sulfur
# (Nathalis iole)
# Migratory Breeder



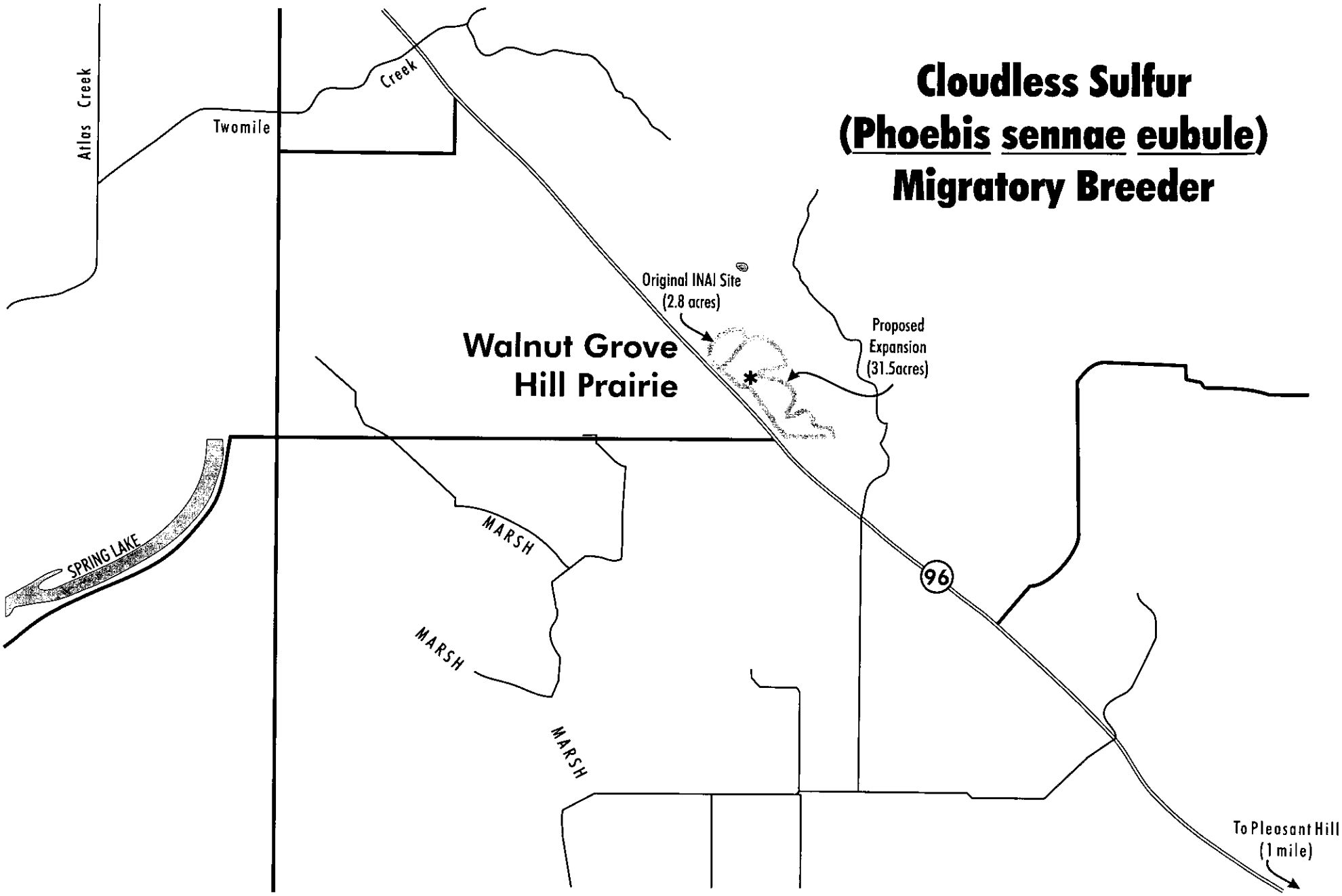
# Little Sulfur
# (Eurema lisa)
# Migratory Breeder



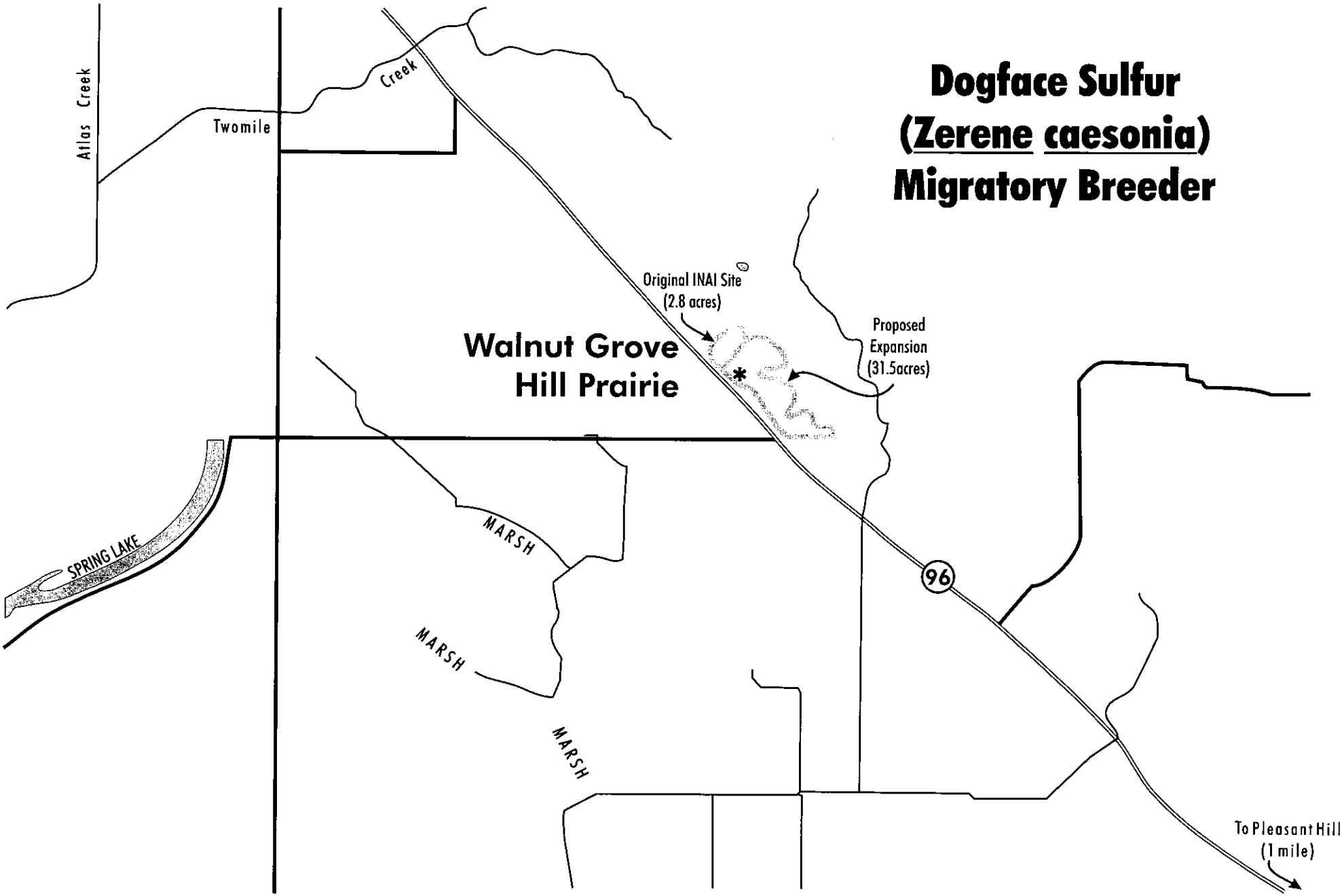
# Sleepy Orange (Eurema nicippe) Migratory Breeder



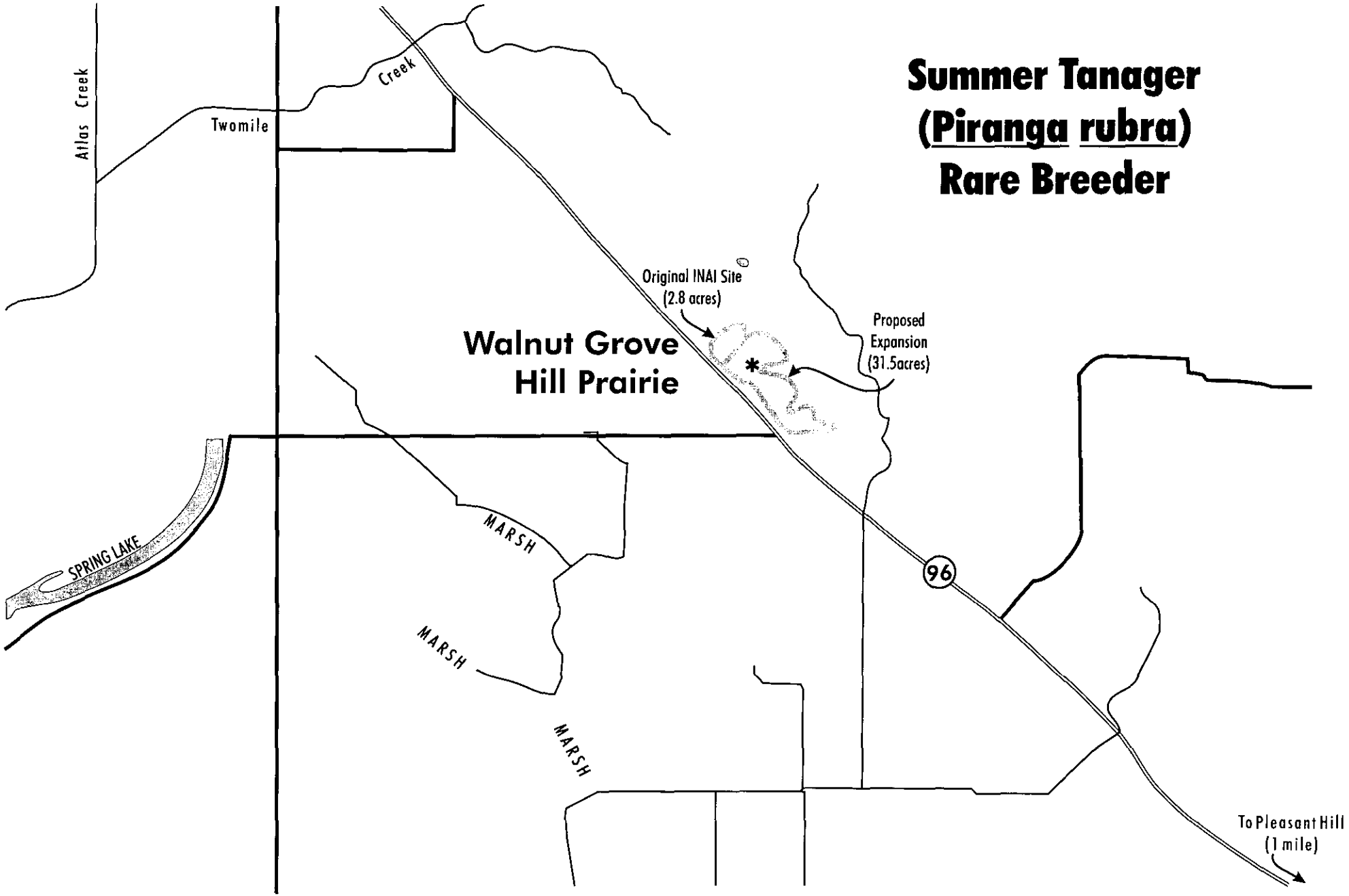
# Cloudless Sulfur
# (Phoebis sennae eubule)
# Migratory Breeder



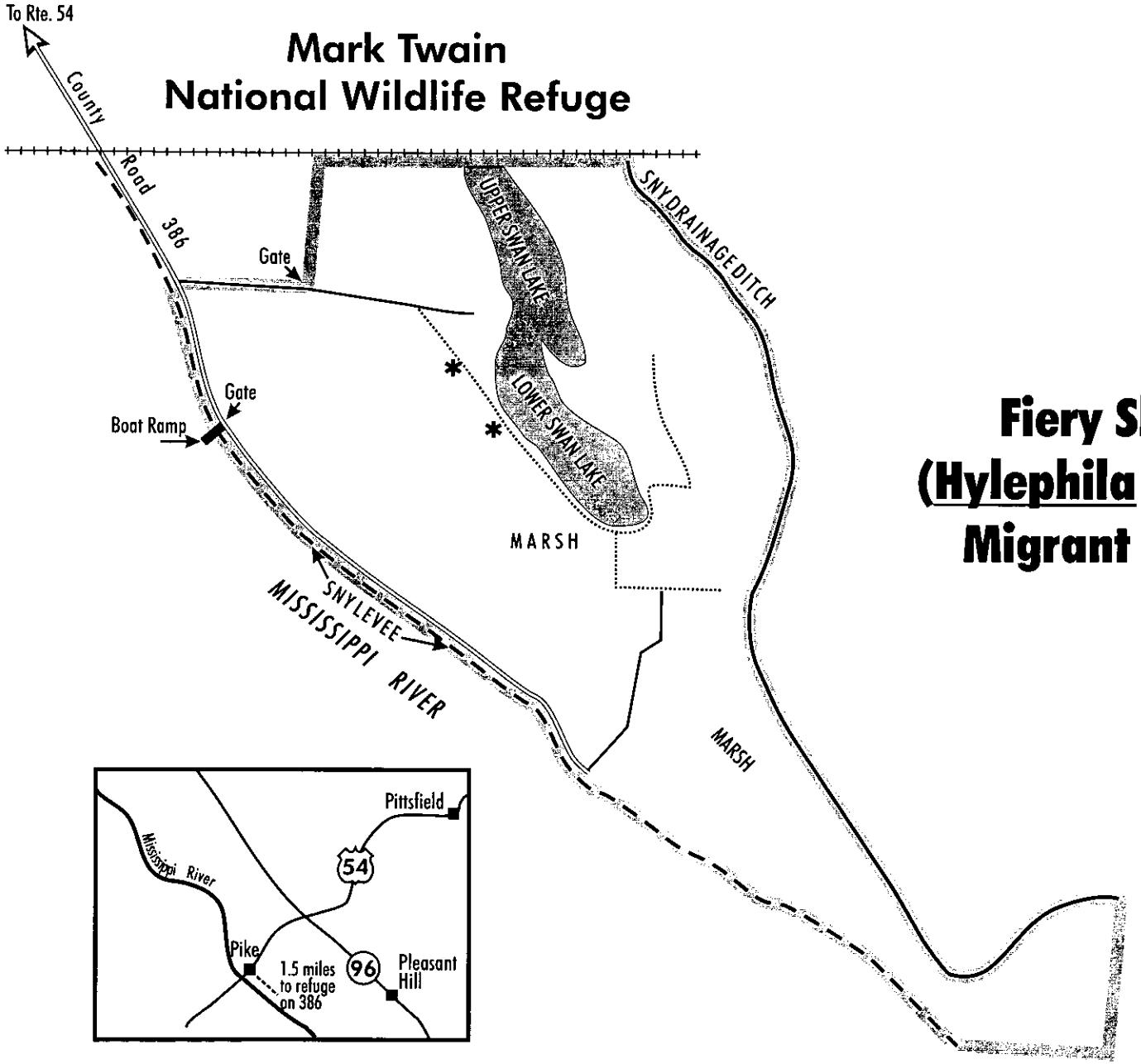
# Dogface Sulfur
# (Zerene caesonia)
# Migratory Breeder



# Summer Tanager (Piranga rubra) Rare Breeder

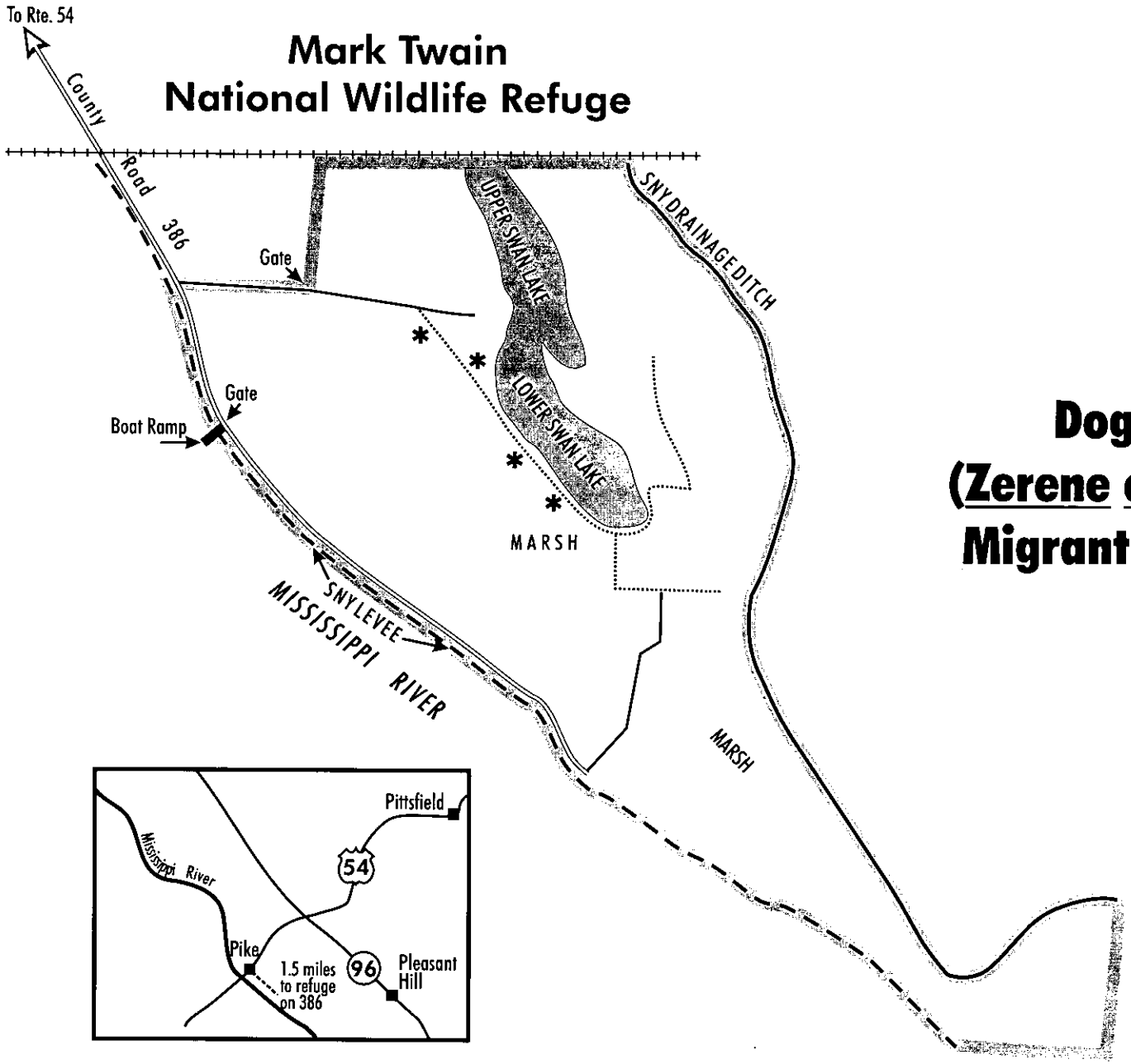


# Mark Twain National Wildlife Refuge



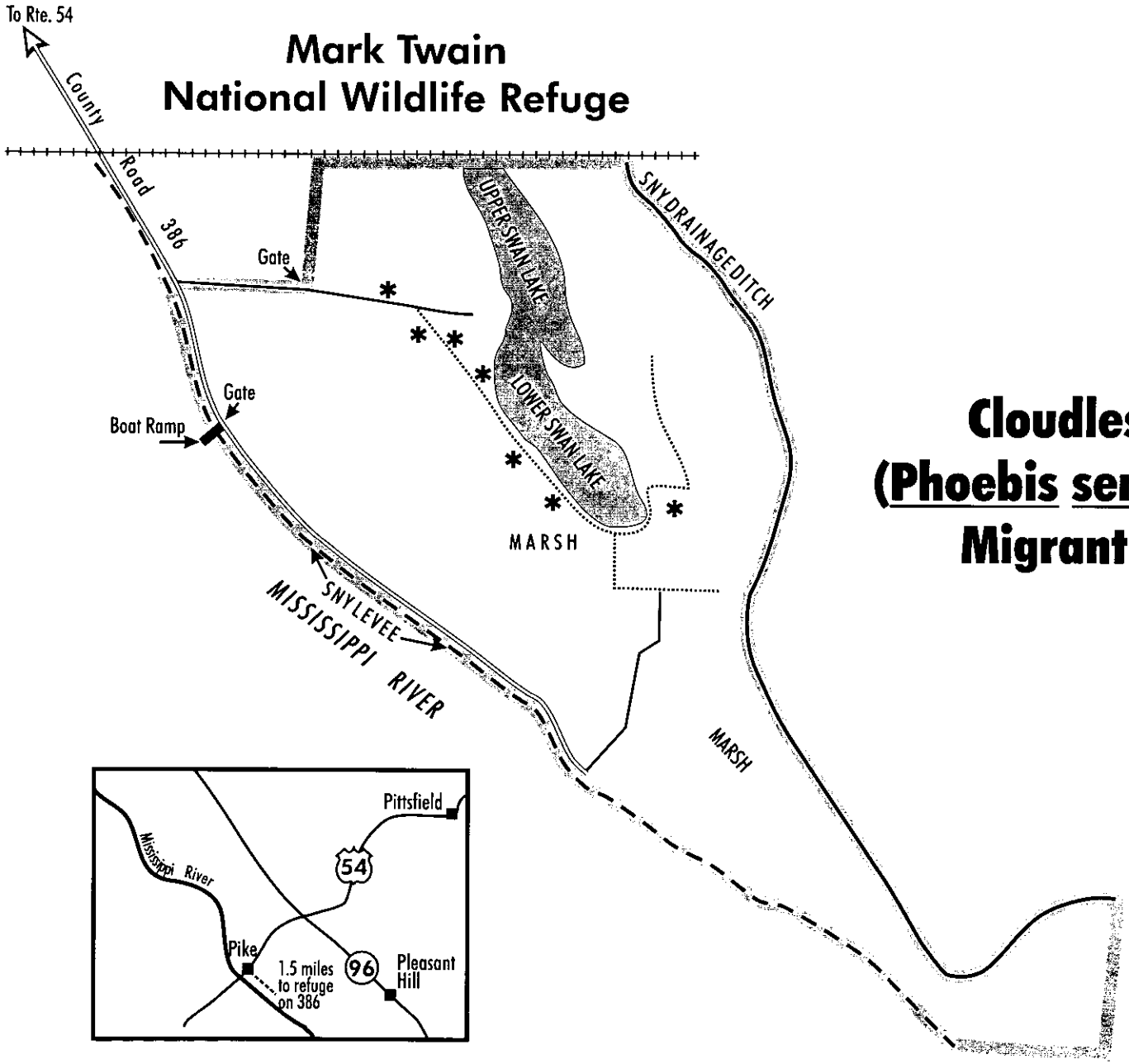

## Fiery Skipper
## (Hylephila phylaeus)
## Migrant Breeder

# Mark Twain National Wildlife Refuge



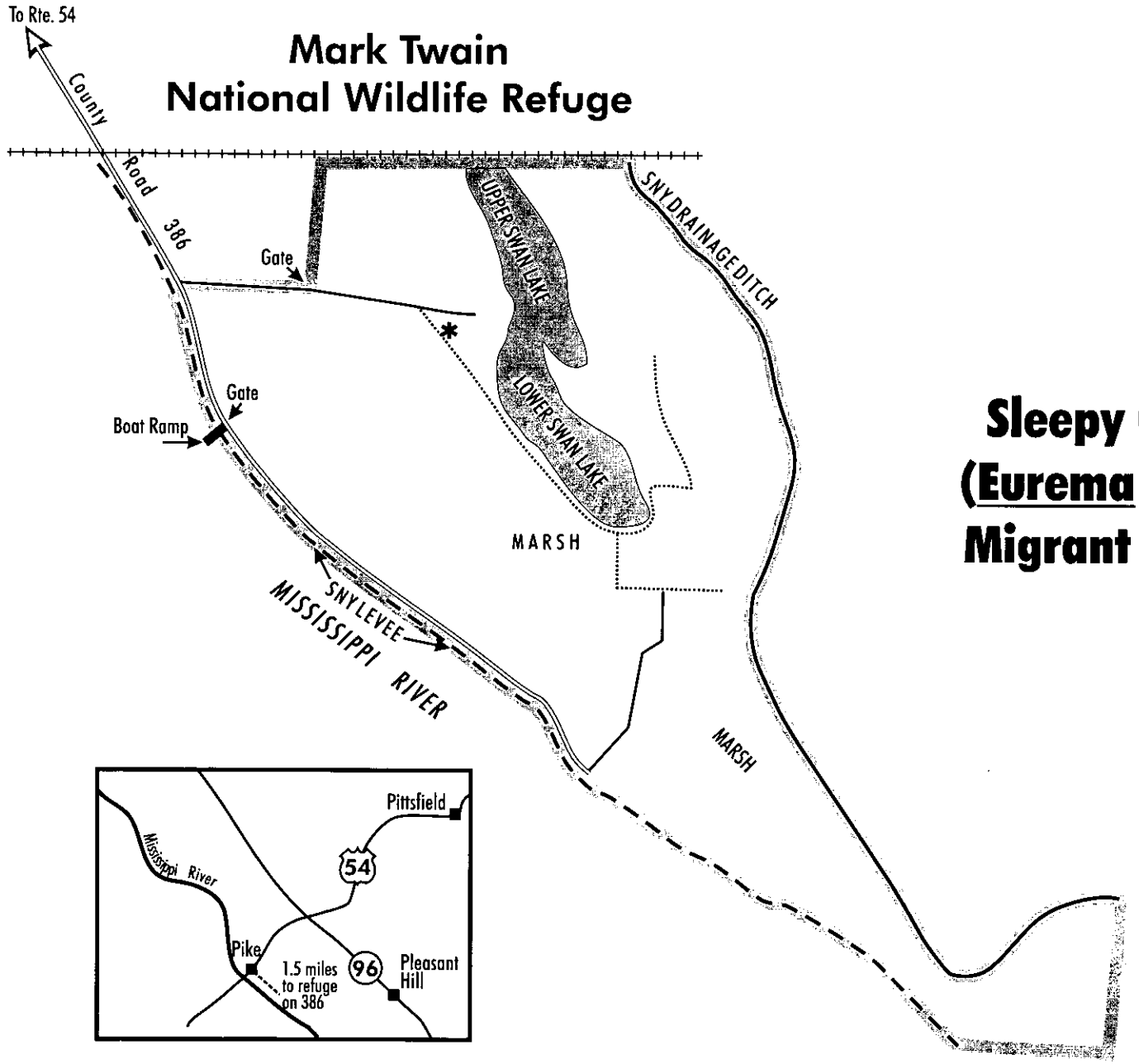

## Dogface
## (Zerene caesonia)
## Migrant Breeder

# Mark Twain National Wildlife Refuge



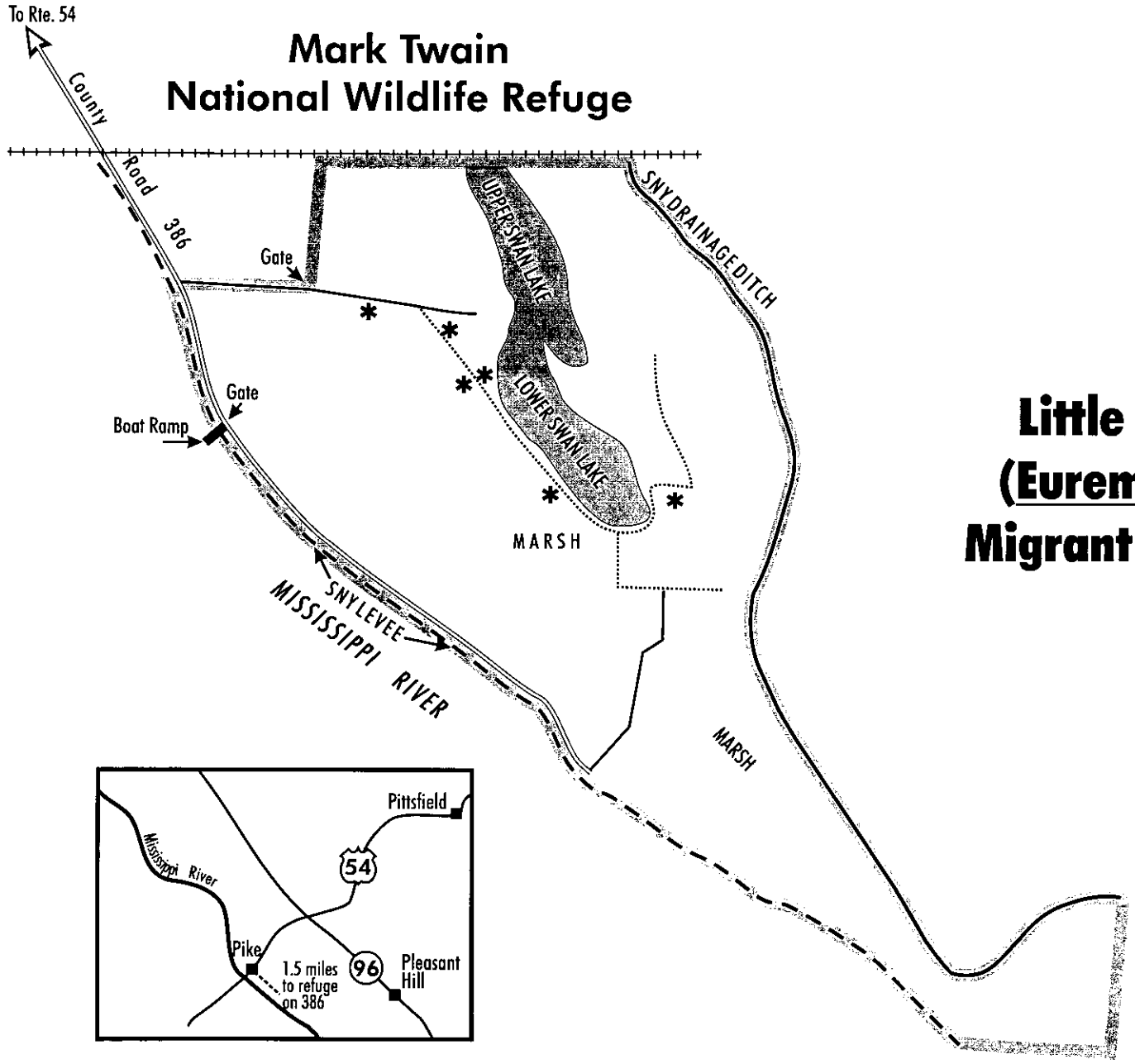

## Cloudless Sulfur
## (Phoebis sennae eubule)
## Migrant Breeder

# Mark Twain National Wildlife Refuge



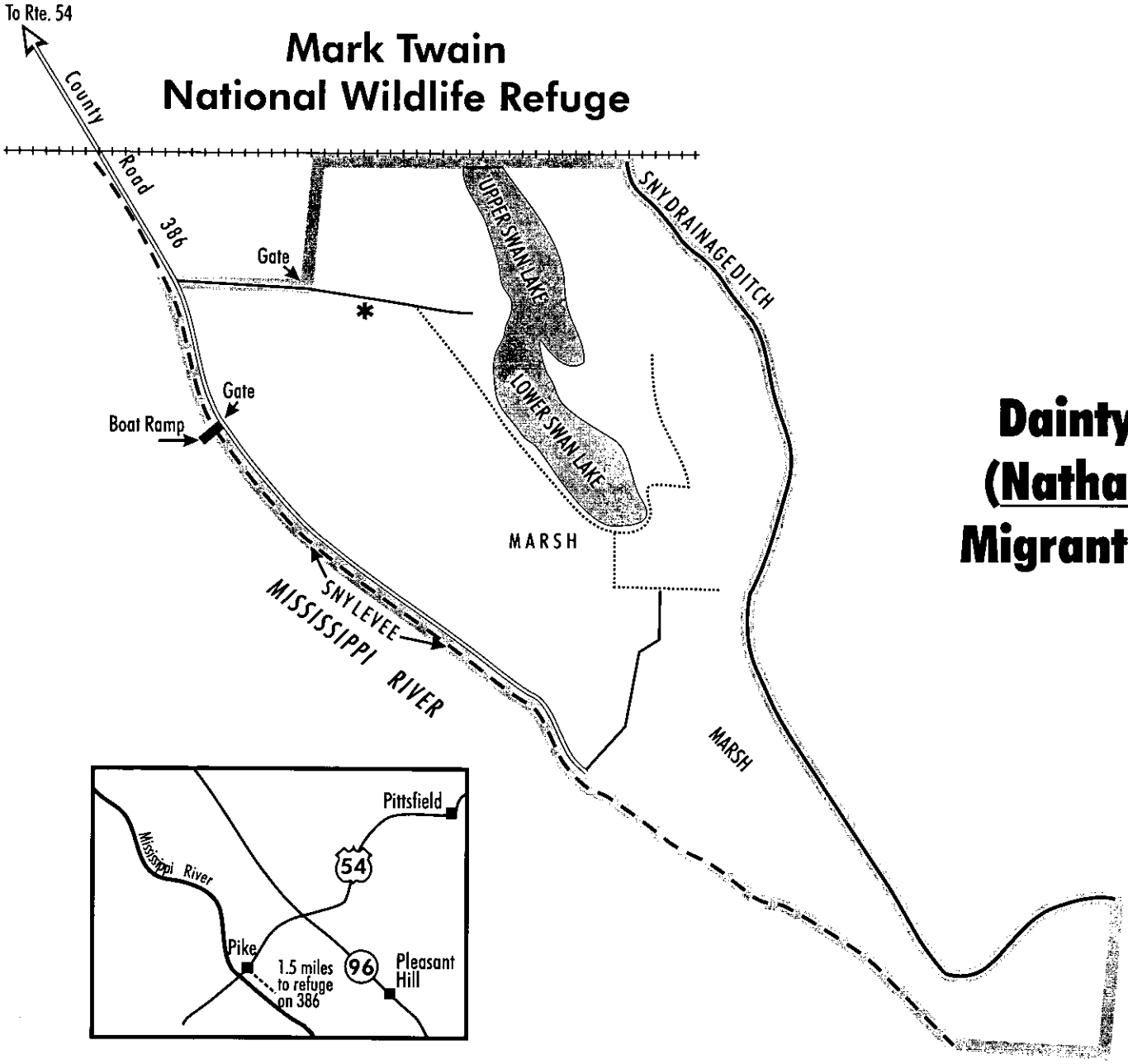

## Sleepy Orange (Eurema nicippe) Migrant Breeder

# Mark Twain National Wildlife Refuge



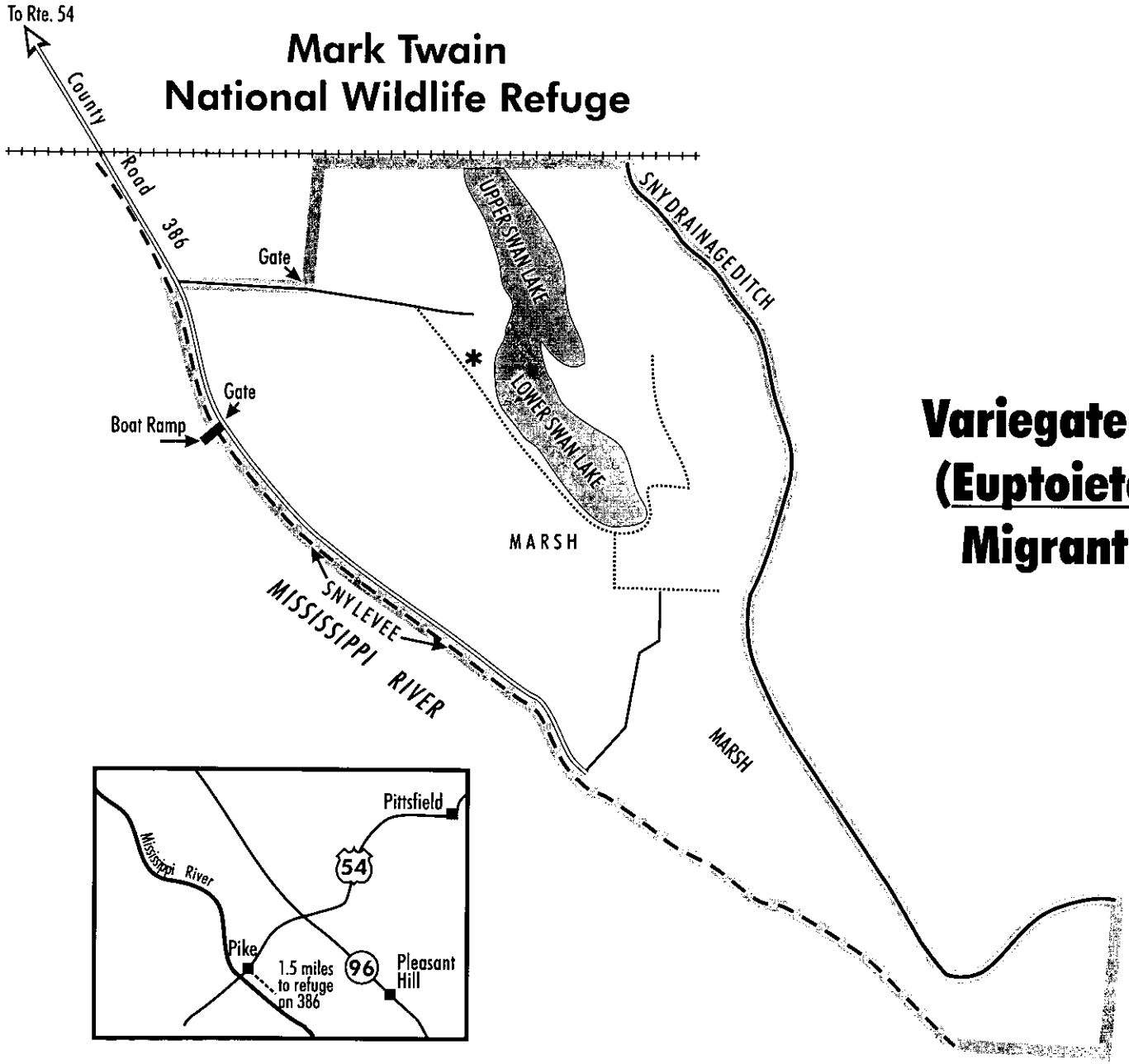

## Little Sulfur (Eurema lisa) Migrant Breeder

# Mark Twain National Wildlife Refuge



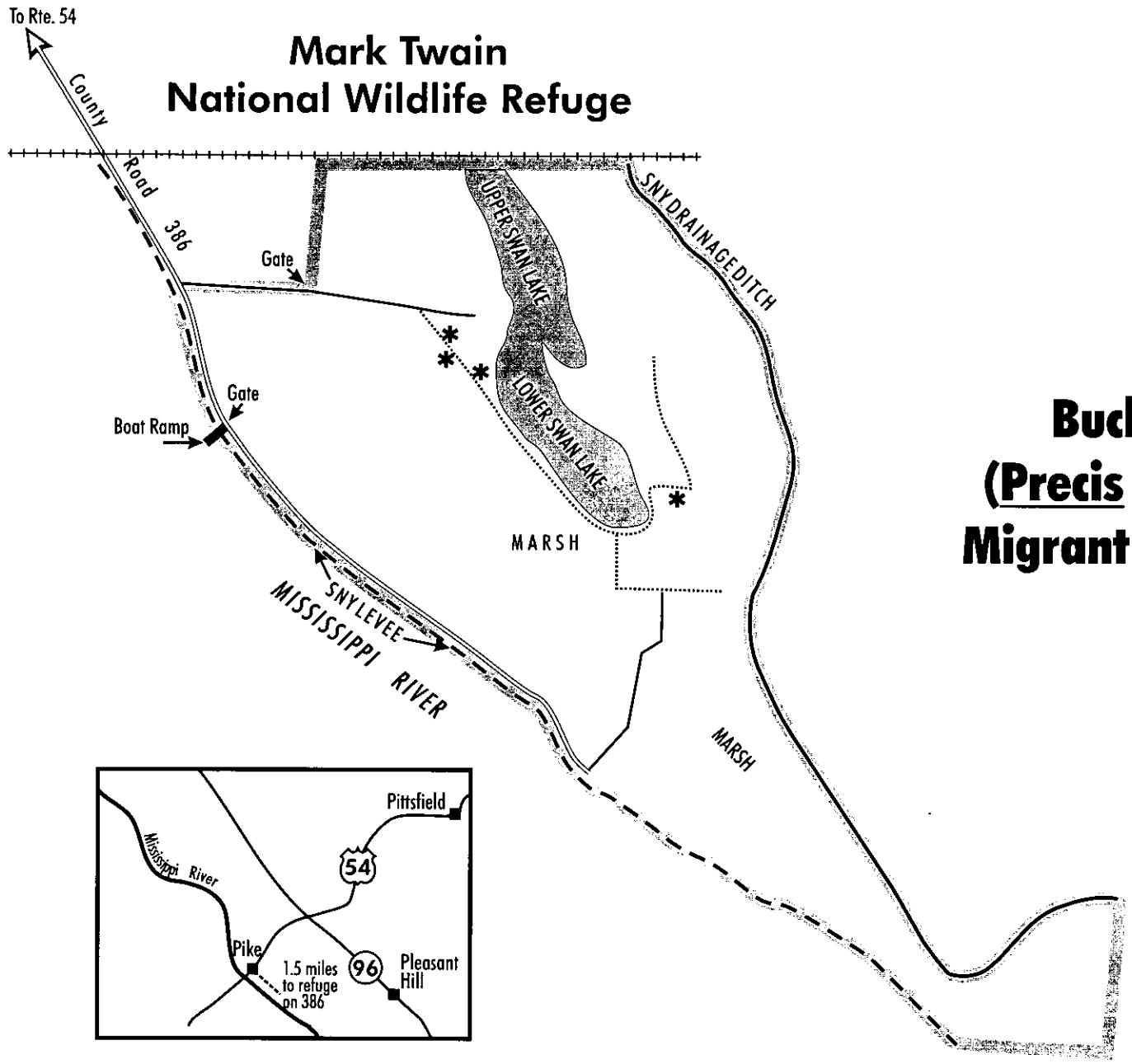

## Dainty Sulfur (Nathalis iole) Migrant Breeder

# Mark Twain National Wildlife Refuge



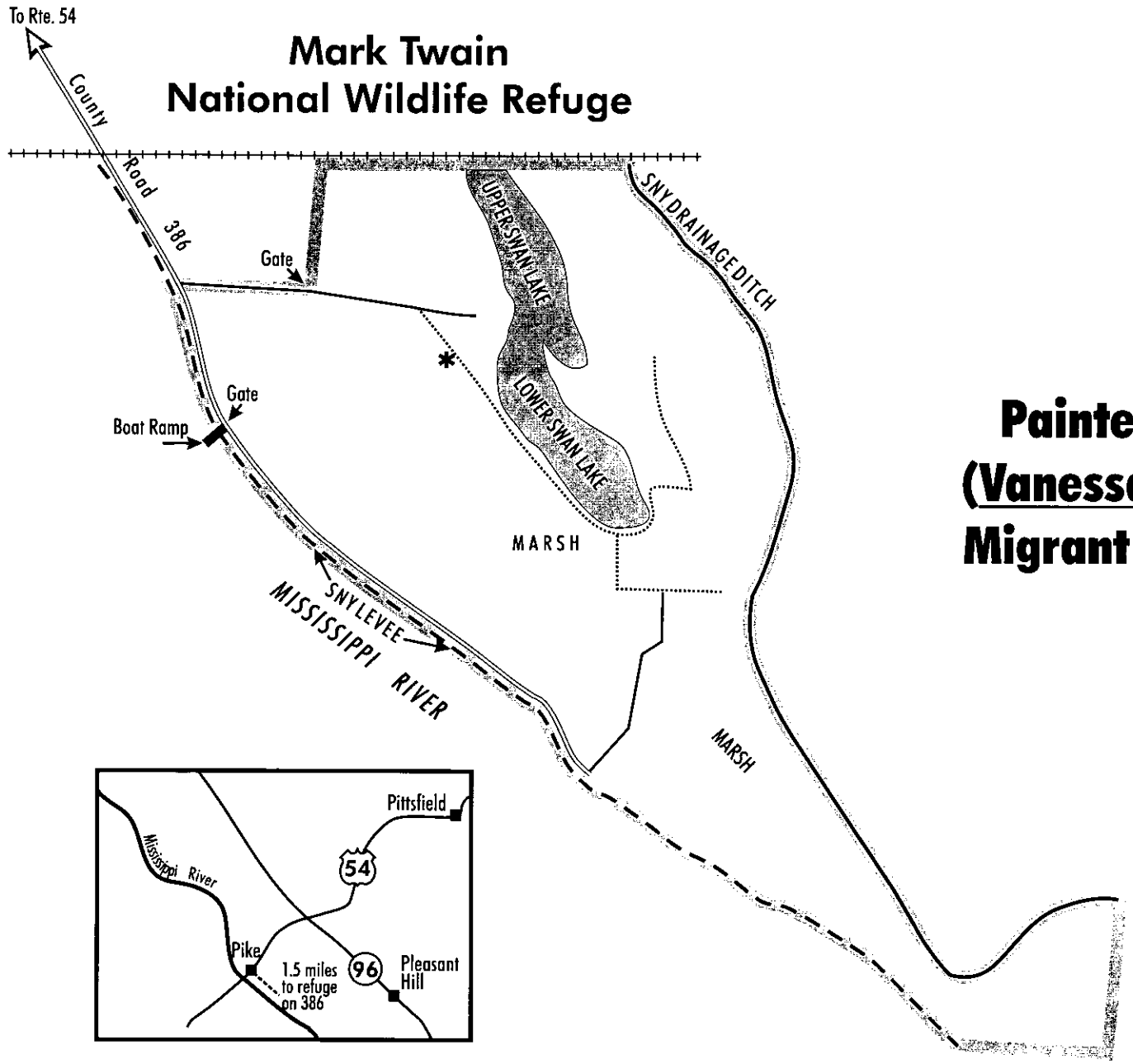

## Variegated Fritillary (Euptoieta claudia) Migrant Breeder

# Mark Twain National Wildlife Refuge



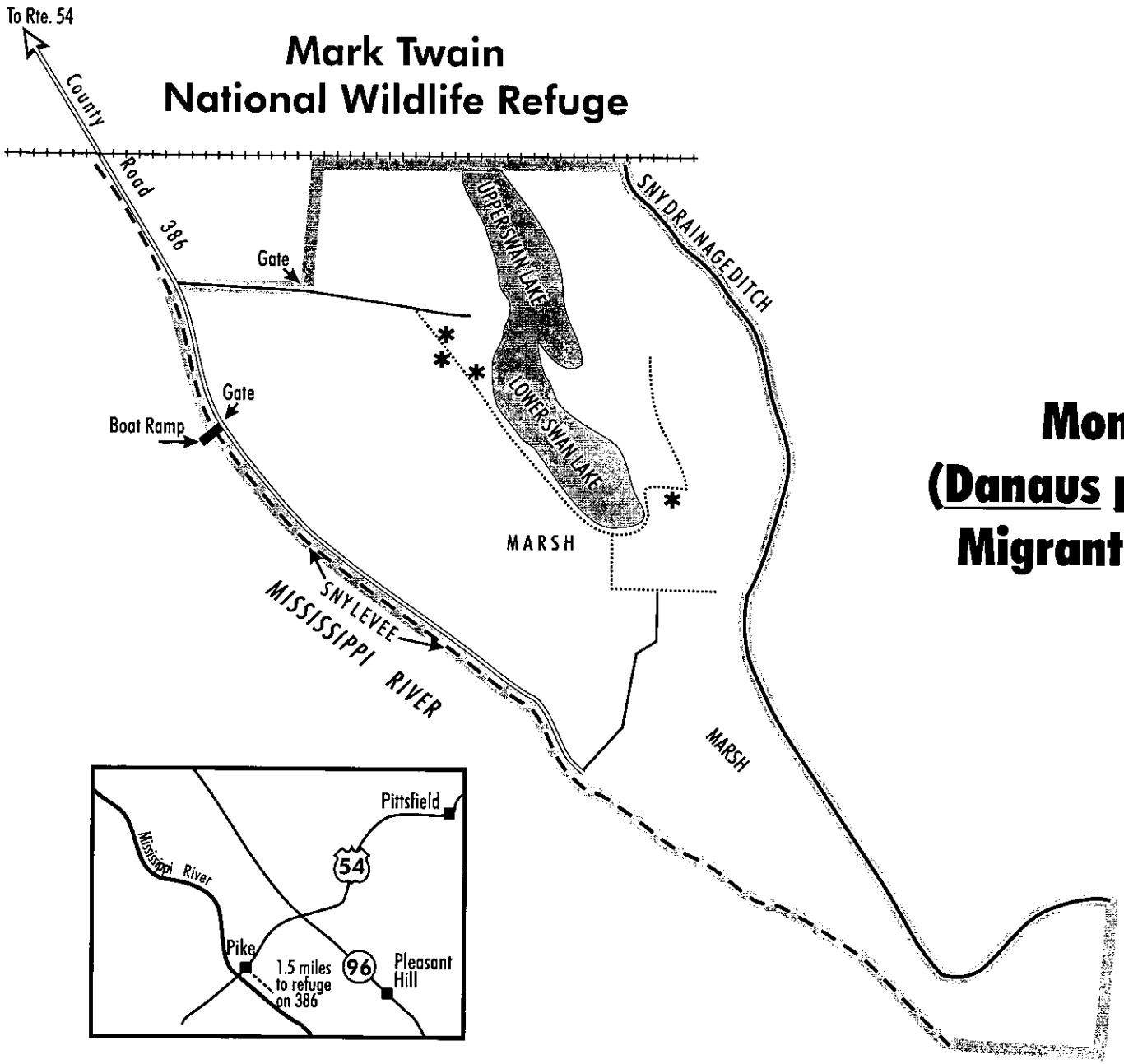

## Buckeye
## (Precis coenia)
## Migrant Breeder

# Mark Twain National Wildlife Refuge



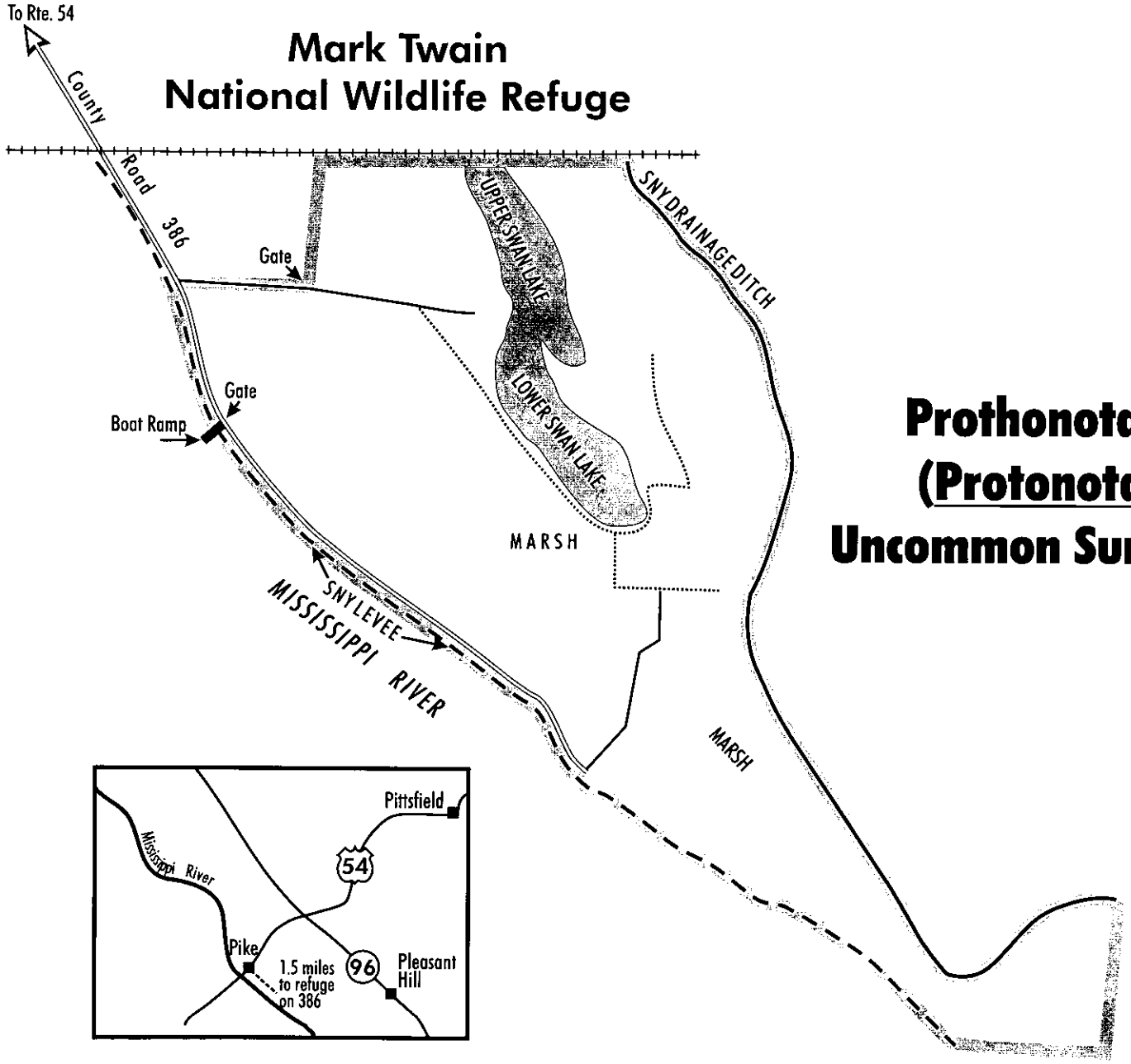

## Painted Lady
## (Vanessa cardui)
## Migrant Breeder

# Mark Twain National Wildlife Refuge




## Monarch
## (Danaus plexippus)
## Migrant Breeder

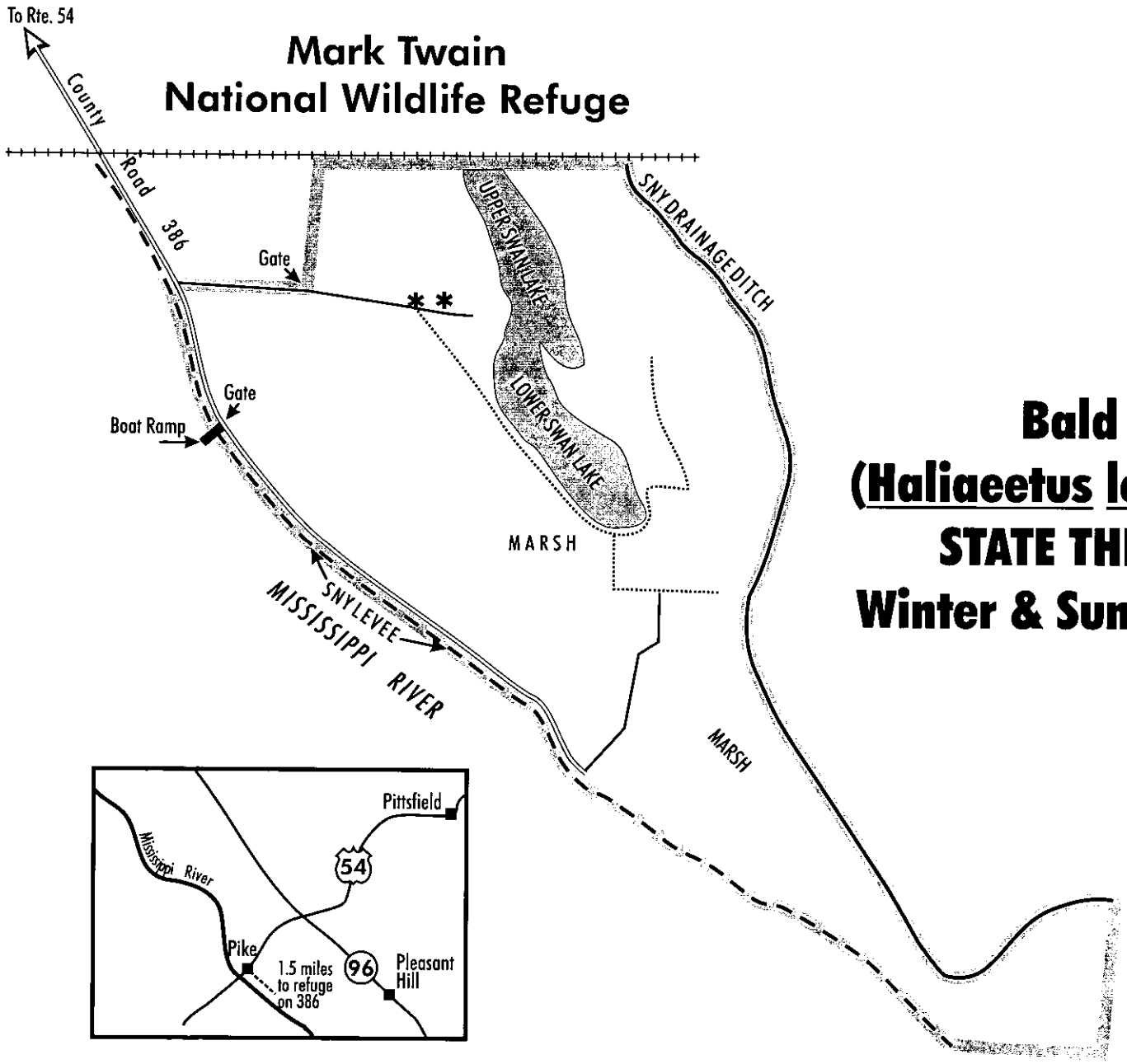
# Mark Twain National Wildlife Refuge




## Prothonotary Warbler (Protonotaria citrea)

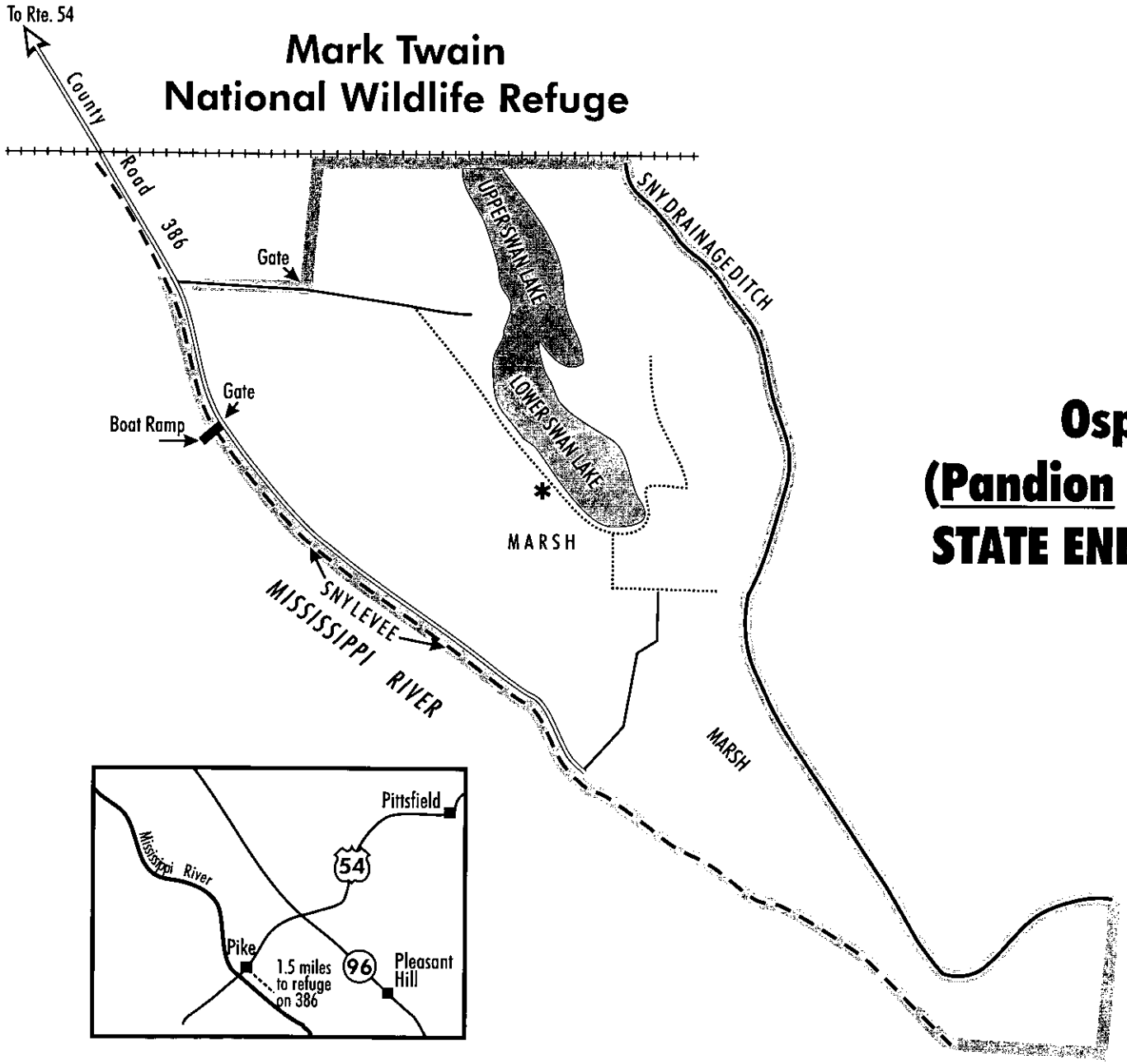
## Uncommon Summer Resident

# Mark Twain National Wildlife Refuge



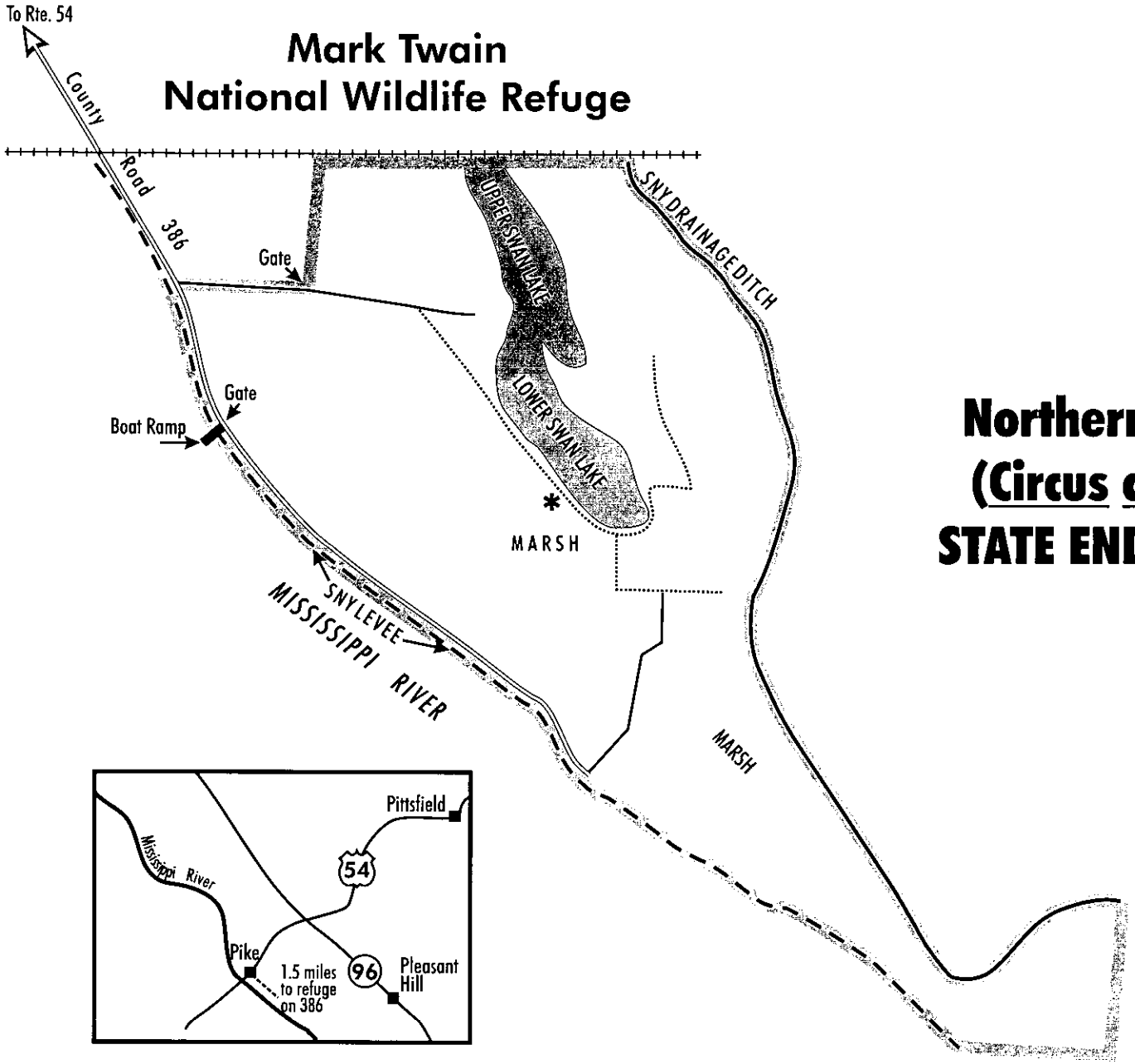

## Bald Eagle
## (Haliaeetus leucocephalus)
## STATE THREATENED
## Winter & Summer Breeder

# Mark Twain National Wildlife Refuge




## Osprey
## (Pandion haliaetus)
## STATE ENDANGERED

# Mark Twain National Wildlife Refuge




## Northern Harrier (Circus cyaneus) STATE ENDANGERED