

(5 taken), *Wallengrenia otho* Abbot & Smith (3 taken). A few additional hesperiine species were also taken, but as single specimens only.

Of these, *aaroni*, *logan*, and *dion* in particular were feeding at the blue flowers of *Pontederia*, which grew abundantly in the ditches, and on nothing else. A few other plants were in flower and I repeatedly checked them, always with negative results.

About five weeks later, on 8 June 1968, I visited the area again. The *Pontederia* flowers were almost completely gone and not one of the hesperiines was found. Two subsequent visits were made in 1969: one on 19 March, the *Pontederia* barely emergent above the deep water in the ditches and not yet in flower; and one on 24 November, when the ditches were nearly dry, overgrown with grasses, mostly dead, and no *Pontederia* flowers at all. Neither of these visits yielded any of the hesperiines.

These three skippers, *logan*, *aaroni*, and *dion*, may be single brooded locally, all flying synchronously for a few weeks in the spring, although the possibility of a second brood in summer or fall in this area is not yet excluded. The significant point in the present connection is that although they are competitors these skippers apparently are forced to fly contemporaneously by the brief flowering time of their only source of adult food, *Pontederia*.

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### PIERIS PROTODICE AND URBANUS DORANTES IN SOUTHERN FLORIDA

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Collecting in Florida has uncovered many butterfly and moth species known from nowhere else in the United States, yet, paradoxically, many species which logically should be well known from there appear to be rare or absent. New records from the state are being reported every

year. The implication is clear: Florida's lepidopteran fauna is still poorly known, despite all that has been written on it. The observations on the two species below, taken in Dade and Monroe counties during late March and early April, 1970, serve to demonstrate this fact rather graphically.

*Pieris protodice protodice* Boisduval and LeConte

Kimball (1965, p. 37) says about this butterfly, "At present this species seems to be very rare in Florida." The majority of his records are from the northern part of the state, and the species is reported more and more rarely as one proceeds southward along the peninsula. On the east coast the most southerly records are from Fort Lauderdale, Broward County, and Paradise Key, Dade County, where the butterfly is listed as rare. We found a thriving colony of this species in a grove at the north end of Homestead, Dade County, and took a number of specimens from 19 March through 3 April. Because fresh specimens were seen throughout this period, we feel that the butterfly probably has a long flight period at Homestead. Had one been concentrating on *protodice* it would have taken little time and effort to collect fifty or more specimens in a day, so this butterfly cannot be considered rare there. One of the foodplants, Shepherd's Purse, *Capsella Bursa-pastoris*, a common weed in the north, was also abundant in the grove, so the checkered white was not lacking for larval food. Perhaps the recent lowering of the southern Florida water table has provided a more hospitable environment for *Capsella* in disturbed habitats, and *protodice* may be spreading southward with the success of its foodplant.

*Urbanus dorantes dorantes* (Stoll)

Clench (1970) has recorded this species from Chokoloskee, Collier County, and has listed the first of our specimens from the north end of Homestead, Dade County. Subsequently we collected eight more specimens from the same area between 30 March and 3 April and saw many others that were not taken. Two additional specimens were taken along a trail through a small hammock on Key Largo, 17 miles northeast of Tavernier, Monroe County, on 31 March. Two others were seen, but not captured, in the same locality on 4 April. The Key Largo specimens were taken in the company of such typical hammock species as *Eunica tatila tatilista* Kaye and *Phocides pigmalion okeechobee* Worthington.

Neither Clench (1970) nor we know to which subspecies the purported Florida *dorantes* in the Cleveland Museum belongs (Kimball, 1965: 51), and we doubt the validity of the specimen in any case. We are in full

agreement, however, that the recent specimens are nominate *dorantes* (for a discussion of the differences see Clench, 1970), which otherwise is found from Texas and Arizona southward on the continent, rather than either of the Antillean subspecies. Just how the continental subspecies, with an apparent disjunction in range of about a thousand miles by land and several hundred miles over water, comes to be the Florida subspecies in preference to the Cuban subspecies, *d. santiago* (Lucas), with only a ninety-mile water barrier to cross, is indeed a zoogeographic puzzle. Postulation of a colonizing flight from Mexico or Texas across the Gulf of Mexico being successful when no colonization in the same manner from Cuba has taken place seems beyond the limits of credibility. There also could be a narrow strip around the Gulf of Mexico from Texas to Florida in which the species occurs, but if this is true, why have intervening populations not been found? Even in the area from Tampa to Fort Myers, Florida, where some of the most comprehensive collecting in the state has been done in recent years by Kimball, King and others, *dorantes* has not been detected, so it seems that the idea of interconnected populations from Florida to Texas is unlikely. The remaining idea, that *dorantes* was introduced artificially, seems most reasonable. Certainly once it got into southern Florida it should thrive, because there is no shortage of Fabaceae to serve as larval food in the area, and the climate is comparable with that of other places where this species is native. *U. dorantes* must be a relatively recent arrival in the Homestead–Key Largo area, since it was not recorded by the industrious collecting over many years by Mrs. Leslie E. Forsyth of nearby Florida City.

Most of the specimens we took were in shaded parts of the two habitats, rather than in bright sunlight, and the butterflies were most commonly found during the hottest part of the day. Their habits rather closely resembled those of the Baja California, Mexico, populations (Miller, in press) in that they fluttered around the shaded parts of the area and tended to shun the open places when the sun was brightest. In such shaded areas *dorantes* was by far the dominant *Urbanus*, but in sunny places *U. proteus* (Linné) was commonest. The butterflies are avid flower visitors, preferring blooms of *Bidens*, so long as these blossoms are in comparative shade. Specimens will take up perches and chase other butterflies in their "territories." *U. dorantes* is rather more wary than *proteus*, except when they are at flowers.

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A NEW SPECIES OF *PIRUNA* FROM TEXAS (HESPERIIDAE)

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During the summer of 1968 J. E. Hafernik collected rather extensively in the Big Bend area of Texas. Among the many very interesting species that he collected were two specimens of an undescribed species of *Piruna* that is here described.

***Piruna haferniki* Freeman, new species**

MALE (Upper side): Primary dark brownish-black, with seven white, hyaline spots; a prominent, oval, spot in space 2 and midway between this spot and base of wing another much smaller spot in same space. In space 3, a small, round, spot situated directly under apical spot in space 6. Three well developed apical spots of approximately same size in spaces 6, 7, and 8, forming a straight line; lower spot directed toward an area between apex and mid termen of wing. A small, upper cell spot. Fringe light brown, uncheckered.

Secondary dark brownish-black, unmarked. Fringe light brown, uncheckered.

MALE (Under side): Primary brown, slightly lighter in the apical region. White, hyaline spots present and better defined than on upper side.

Secondary dark brown with a heavy overscaling of purplish-gray scales over basal half of wing and extending from anal fold along outer margin to space 5. A slightly ferruginous area extending above space 5 along outer margin to apex. Throughout discal area from space 1 to costa an area without overscaling; here brown ground color forming a broadly triangular area darker than the remainder of the wing. No spots present.

BODY: Thorax dark brownish-black above, lighter brown beneath. Abdomen dark brownish-black above, lighter brown beneath. Head brown, with a few yellowish, hair scales present. Palpi white at base, yellowish at termen, dark grayish on lateral sides. Legs golden brown. Antennae, both shaft and club, dark brownish-black above, lighter beneath; club especially pale beneath, yellowish. Apiculus golden.

*Wing measurements.* Primaries: base to apex, 11 mm; apex to outer angle, 7.5 mm; outer angle to base, 9 mm. Secondaries: base to end of vein 3, 9.5 mm; center of costa to anal angle, 7.5 mm. Total expanse: 23 mm.

Type Material: Holotype, male, Green Gulch, Big Bend National Park, Brewster County, Texas, elev. 5700 ft., 4 August 1968 (J. E. Hafernik) in the American Museum of Natural History, New York. One male paratype, same location and collector, 24 July 1968, at present in my collection.