

NEW RECORDS OF PERDITA FROM THE EASTERN  
UNITED STATES(HYMENOPTERA, APOIDEA)<sup>1</sup>BY P. H. TIMBERLAKE, *University of California Citrus Experiment  
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The author is greatly indebted to Professor T. B. Mitchell of the North Carolina State College for the privilege of studying the new species and other material of the genus *Perdita* Smith, herein described and recorded. These are all from the eastern half of the United States and indicate that the genus is considerably more extensive in the East than has been recognized.

*Perdita carolina*, new species

This is a new species of the *Alloperdita* group that is intermediate between *P. novae-angliae* Vier. and *P. obscurata* Cress. in the shape of the head, and similar to the former in colorational characters.

*Female*.—Head and thorax dark shining green, the clypeus and labrum black; apical half of the mandibles rufous; basal half of mandible, very small lateral face marks, and one to three small marks on clypeus, yellow. Median spot of clypeus generally confined to upper half of disk and in the form of a fine-limbed T. A spot of each side of anterior part of disk often present. Lateral face marks triangular, often restricted to anterior corners of face but sometimes extending thinly inward along anterior margin of the lateral face plates. Thorax without markings. Abdomen shining blackish, the pygidium rufous, and the apical margin of the ventral segments rufotestaceous. A rather narrowly interrupted basal yellow band on tergites 2 to 4, not quite reaching the lateral margins, and with the halves subacute mesad and gradually broadened laterad. Sometimes two widely separated basal yellow spots present on tergite 5. Legs blackish, the apex of front femora and anterior side of front tibiae, yellow; tarsi brownish yellow, usually becoming more brownish on the basitarsi. Antennae black, the scape narrowly yellow beneath, at least at the base. Tegulae testaceous. Wings whitish hyaline, the nervures and stigma pale testaceous, except subcosta, which is fuscous. Head as broad as long, thin fronto-occipitally, becoming thickest just below the upper ends of eyes. Clypeus rather produced and prominent. Facial foveae almost half as long as eyes. Face below antennae, and the mesonotum, polished, the former nearly impunctate and the latter with minute and rather sparse punctures. Frons, vertex, and pleura of thorax minutely tessellate but shining and minutely punctured. Abdomen

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minutely lineolate and almost impunctate except on tergite 5. Pygidium almost plane and subacute at apex. Fore wing usually with a small intercalary submarginal cell. Stigma rather large and broad. Substigmatal and poststigmatal parts of marginal cell equal, the apical truncation oblique and rather wide. Pubescence thin and whitish, the hair on mesoscutum short and erect. Length, 6-6.5 mm.; anterior wing, 4-8.5 mm.

*Male*.—Similar to female in many characters. Mandibles except rufous tips, labrum, and large part of face below level of antennae, yellow. The supraclypeal area except anterior margin, however, green, and the green of frons descending on each side to make a triangular excision between the yellow subantennal plates and the upper end of the lateral marks. A black dot on each side of disk of clypeus. Head and thorax more bluish green than in female, the thorax immaculate except for a small yellowish spot on tubercles. Abdomen piceous, the narrow apical depression of tergites tinged with rufous, more broadly so on tergite 5, and tergites 6 and 7 entirely rufous; venter rufotestaceous, the basal segments more or less yellowish, except at apex. An interrupted yellow band on tergites 2 to 4 or 5; these bands more uniform in width than in female, and those on the more apical segments often concealed by apex of the preceding segment. Legs yellow, with the following parts fuscous or black: base of coxae, broad streak on front femora behind, a narrower streak on middle and hind femora, a small spot on antero-dorsal surface of hind femora often confluent with the posterior streak, posterior side of front tibiae, a streak over nearly the whole length of middle tibiae on outer side, and the hind tibiae except on anterior side. Antennae yellow beneath, becoming dilute fuscous above on flagellum and darker fuscous on scape. Tegulae and wings as in female, but margins of stigma fuscous like the subcosta, the nervures forming the marginal cell also slightly darkened. Head somewhat broader than long and thicker fronto-occipitally than in female. Mandibles moderately long, slender, and with a small preapical inner tooth. Frons duller and more tessellate than in female, impunctate, but sculpture of other parts not differing from female. Pubescence similar, except that hair of cheeks is much longer and moderately denser, and hair at apex of abdomen somewhat sparser, than in female. Length, 5-6 mm.; anterior wing, 4.2-4.5 mm.

*Type*.—U. S. N. M., no. 61610.

Described from the holotype female, allotype male, and 8 female and 12 male paratypes, at flowers of *Batodendron*, Taylor's Bridge, Sampson County, North Carolina, May 24 and 30, 1951 (T. B. Mitchell and H. K. Townes); 1 female paratype, Sampson County, N. C., on *Batodendron*, May 18, 1950 (Mitchell); and 1 female paratype, Raleigh, N. C., middle of August, 1922. Paratypes in collections of the North Carolina State College and the Citrus Experiment Station.

#### *Perdita crawfordi* Cockerell

*P. crawfordi* Cockerell, 1901, Entomologist, 34, p. 190, ♂, ♀.

Described from Lincoln, Nebraska, and also recorded from Texas by Cockerell. New records are based on 2 males and 1 female from Winnfield, Winn County, Louisiana, June 27, 1918 (G. R. Pilate), and 3 females from Branson, Missouri, September 14, 1939 (E. C. Van Dyke).

***Perdita bishoppi* Cockerell**

*P. bishoppi* Cockerell, 1906, Entomologist, 39, p. 148, ♀, ♂.

This has been known previously only from Texas, but I find that the following material must be referred to this species: 1 male, 14 females, south of Ponte Vedra Beach, Florida, Sept. 1, 1949 (T. B. Mitchell); and 12 males, 7 females, Saint Simons Island, Georgia, Sept. 10, 1931 (Bradley and Knorr).

***Perdita blatchleyi*, new species**

This Florida species is similar to *P. asteris* Cockerell, of New Mexico, in regard to the face marks, but differs in having the wings a little dusky, with pale-brown nervures, and in having a broad, interrupted white band on tergites 2 to 4, and a spot on each side of tergite 1 of abdomen. It belongs to the *ignota* group, together with the two preceding species.

*Female*.—Dark, rather dull blue-green, the abdomen brownish black, the light markings creamy white. Mandibles except rufous tips, clypeus except irregular fuscous band on upper margin, and large lateral face marks, white. The latter marks much higher than wide, acute above, and reaching level of antennae. Labrum testaceous. Collar of pronotum, euneate marks on posterior corners of pronotum, and tubercles, white. Light bands of abdomen rather broad, considerably widened at outer ends of tergite 2, moderately narrowly interrupted in middle on tergites 2 and 3, and slightly more so on tergite 4, with the two marks thus formed on tergite 3 distinctly oblique, their inner ends more basal than their outer ends. The two spots on tergite 1 rather small and placed on lateral margins of disk. Apical tergite rufo-testaceous. Legs brownish, the tarsi, especially the small joints, paler brown, and a small white spot present on front knees. Antennae reddish brown, becoming darker above and nearly black at base of flagellum and on the scape. Tegulae testaceous hyaline. Wings somewhat dusky, with nervures and margins of stigma brown. Head about as broad as long except for the rather strongly produced clypeus. Mandibles moderately long and stout, abruptly narrowed and incurved at apex, and without a distinct inner tooth. Face below antennae rather strongly convex and prominent, the inner orbits of eyes only slightly converging below. Pygidial plate of abdomen broad and broadly rounded at apex. Marginal cell of wing with substigmal and poststigmal parts equal, and its apex obliquely truncate. First recurrent nervure received by the second submarginal cell about one fifth of the length of cell from the base. Frons and mesoseutum minutely and strongly tessellate and rather dull, the pleura

of thorax and propodeum also tessellate but more shining. Abdomen very minutely lineolate and shining. Pubescence of head and thorax short, moderately sparse, and whitish but definitely less pure white than in *asteris*; that of mesonotum very short and erect. Hair of legs and of apex of abdomen ochreous. Length, 4.5-5.5 mm.; anterior wing, 3.5-3.8 mm.

*Types*.—Two females, holotype and paratype, Dunedin, Florida, Oct. 20-30, 1914 (W. S. Blatchley). Holotype in collection of Cornell University; the paratype retained for the Riverside collection.

***Perdita consobrina consobrina* Timberlake**

*P. consobrina* Timberlake, 1928, Amer. Mus. Nov. 321, p. 3, ♀.

A large series of both sexes of this species was collected by Professor Mitchell at Southern Pines, North Carolina, Sept. 10-22 in 1949 and 1950; also one female in Harnett Co., N. C., Oct. 10, 1945, and another at Lakeview, N. C., Sept. 10, 1950. Most of these were collected at flowers of *Chrysopsis*.

The females from North Carolina agree in general with description of the type from Sumter, South Carolina, but the wings apparently are more strongly dusky than is indicated by the original description. The two black bars on disk of clypeus are broad and irregular in shape, and the two yellow spots on supraclypeal area, and the yellow band on tergite 5, are sometimes obsolete. A single female from *Kuhnistera pinnata* has the lower part of face black, with a slender median yellow streak on clypeus and slender yellow orbital stripes; but four other specimens from the same flower agree with the remainder of the series from flowers of *Chrysopsis*. Length of females, about 5.5-6 mm.; anterior wing, 3.3-3.5 mm.

*Male*.—In general, similar to female, but face usually entirely yellow, or nearly so, below level of antennae. The yellow also includes mandibles except rufous tips, labrum, under side of scapes, and a tenuous line on inferior orbits nearly to middle of eyes. Usual pair of dark dots present on clypeus. Lateral face marks broadly truncate at lower level of antennal sockets, with a short slender spur along the orbits above the sockets. Supraclypeal mark usually distinctly emarginate above. Subantennal plates usually all yellow, but entirely green in one specimen. Tubercles and hind margin of pronotum very narrowly yellow on each side. An interrupted basal yellow band in tergites 1 to 3 (more rarely on 1 to 4), always ending distantly from lateral margins and occasionally obsolete. Legs blackish; the following parts yellow: front coxae beneath except base, front and middle trochanters except spot beneath, hind trochanters except a dark annulus, femora at apex and line on upper anterior surface of front pair, front tibiae except blotch behind, front tarsi, anterior side of middle tibiae, and extreme base of hind tibiae. Middle

tarsi brownish yellow. Antennae piceous, the flagellum except last joint somewhat more brownish yellow beneath than the scape. Tegulae testaceous. Wings strongly dusky, the nervures and margins of stigma, brown. Head subquadrate, about as broad as long. Claws bifid at apex. Frons, vertex, meso- and metanotum excessively finely granular tessellate and dull; remainder of head and thorax minutely tessellate and more shining. Length, 4.5-5.5 mm.; anterior wing, 3.0-3.4 mm.

*Perdita consobrina* subspecies *lepida*, new subspecies

As this Florida bee agrees closely with *consobrina* in general appearance and structure, it seems to be no more than a southern race. The female differs from typical *consobrina* in having a large supraclypeal mark, the dark bars of clypeus slender, the marks on posterior corners of pronotum large, and the abdominal bands broader and less interrupted medially. The markings also are paler yellow than in *consobrina*. The males of the two races are virtually identical.

*Female*.—Head and thorax dark green, with pale-yellow markings. The markings include mandibles except rufous tips, labrum, clypeus except usual pair of dots and two dark vittae on upper half of disk, lateral and supraclypeal marks, collar of pronotum, cuneate mark on posterior corners of pronotum, and the tubercles. Vittae on disk of clypeus generally free from the dots and converging above. Supraclypeal mark large and quadrate. Lateral marks much higher than wide and truncate at upper end, where they reach to the frontal foveae. Subantennal plates may be margined with yellow at their upper end. Antennae reddish brown, darker above, becoming narrowly yellow beneath on scape. Abdomen piceous, with a pale-yellow band on tergites 1 to 5; these bands broad and reaching lateral margins, or, in fact, extending on to the reflexed ventral part of tergites 2 to 4; those on tergites 4 and 5 entire although constricted medially, and those on tergites 1, 3, and 2 interrupted more and more broadly in the middle in the order mentioned (interruption on 1 very narrow and that on 2 somewhat less than one fifth of width of segment), with the inner ends of the resulting marks much narrowed and pointed mesad. Pygidial plate rufo-testaceous. Legs brownish piceous, with the knees broadly, the anterior and lower side of front and middle tibiae, yellow, and the front tarsi testaceous yellow. Tegulae testaceous hyaline, with the more opaque base yellow. Wings somewhat dusky hyaline, the nervures and margins of stigma pale brown (the Lake Worth female has the wings slightly longer and less dusky than the Dunedin specimens). Length, 6 mm.; anterior wing, 3.7-3.8 mm.

*Male*.—Essentially identical with male of *consobrina*. In the two type specimens the yellow band on tergite 1 is represented by about three or four dots in a transverse line. In the allotype the other abdominal bands are represented by two widely separated, small oval spots on tergites 2 and 3, and in the paratype by larger, less separated spots on tergites

2 to 4. Structural characters as in *consobrina*, the sculpture of frons and notum of thorax being very fine and dense, with surface dull, but the propodeum and under parts of head and thorax becoming smoother and more shining. Length, 4.5-5 mm.; anterior wing, 3-3.2 mm.

*Types*.—Holotype female, allotype, and 2 females, 1 male (paratypes) Dunedin, Florida, Oct. 23-30 (females), and Oct. 30 (males), 1914 (W. S. Blatchley); 1 female (paratype), Lake Worth, Florida, Nov. 19, 1928 (Bromley).

The types in collection of Cornell University, except one paratype female retained at Riverside, and the Lake Worth specimen, which belongs in collection of the North Carolina State College.

The species of *Perdita* recorded hitherto from the eastern part of the United States and Canada are as follows:

- octomaculata* (Say), 1824, ♂, ♀. N. B. to Minn., south to S. C. and Miss.
- halictoides* Smith, 1853, ♀. Fla.
- obscurata* Cresson, 1878, ♀, ♂. N. J. to Fla.
- bradleyi* Vierck, 1907, ♂.
- maura* Cockerell, 1901, ♂, ♀. Ind., Wis., to Colo.
- bisignata* Cockerell, 1922, ♂.
- boltoniae* (Robertson), 1902, ♀, ♂. Ill.
- gerhardi gerhardi* Viereck, 1904, ♀, ♂. Ind., Wis.
- gerhardi monardae* Viereck, 1904, ♀, ♂. N. J.
- gerhardi arenicola* Timberlake, 1929, ♀, ♂. Ill.
- novae-angliae* Viereck, 1907, ♀, ♂. Mass., Conn., N. J., Md., N. C.
- perpallida citrinella* Graenicher, 1910, ♀, ♂. Wis., N. D., Alta.
- maculigera maculipennis* Graenicher, 1910, ♀, (♂). Wis., Ill.
- maculigera bilineata* Timberlake, 1929, ♀. Mo., Ill.
- lacteipennis pallidipennis* Graenicher, 1910, ♀, ♂. Wis., Ill.
- swenki* Crawford, 1915, ♀, ♂. Mich., Alta., south to Neb.
- bruneri* Graenicher, 1910 (not Cockerell), ♀, ♂.
- bequaerti bequaerti* Viereck, 1917, ♀, ♂. N. J., Ga., Ala., Tenn., Miss.
- bequaerti indianensis* Cockerell, 1922, ♂, ♀. Ind., Okla.
- wichhami* Cockerell, 1922, ♀.
- chrysopsina* Timberlake, 1928, ♂, ♀. N. J. to Fla. and Miss.
- halictoides* Viereck, 1917 (not Smith).
- georgica* Timberlake, 1928, ♂, ♀. Ga., Fla.
- consobrina* Timberlake, 1928, ♀. S. C.
- floridensis* Timberlake, 1928, ♂, ♀. Fla., N. C.
- ainsliei* Crawford, 1932, ♂, ♀. Iowa.
- gerardiae* Crawford, 1932, ♂, ♀. N. C., Fla., Miss.
- mitchelli* Timberlake, 1947, ♀, ♂. Miss., N. C.
- graenicheri* Timberlake, 1947, ♀, ♂. Fla.