

A NEW *DISEMBOLUS* (ARANEAE, LINYPHIIDAE) FROM CAPE COD, MASSACHUSETTS AND LONG ISLAND, NEW YORK

Robert L. Edwards: Research Associate, United States National Museum, Box 505,
Woods Hole, Massachusetts 02543 USA

ABSTRACT. *Disembolus bairdi* new species is described from the coastal region of northeastern United States. Notes on the habitat, natural history and its associated spiders are provided.

The genus *Disembolus* is one of the groups of small erigonine spiders that are all too often described from single individuals with little or no information on their habitat or natural history. The genus is apparently found only in North America and was revised by Millidge in 1981, who recognized 22 species. The new species described here is common on the dunes adjacent to the salt and brackish water marshes of Cape Cod, Massachusetts and Long Island, New York.

Disembolus bairdi new species

Diagnosis.—Small spiders averaging 1.20 mm or less in total length. *Male*: Cymbium with stout knob engaging distal end of tibial apophysis; embolic spiral flat, large. Cephalic dome large and bulbous, sloped backwards, with sulci and pits. *Female*: Epigynum with broad mantle, posterior plate hyaline, with oval, bubble-like bilateral areas, spermathecae widely spaced.

Etymology.—The species is named after Spencer F. Baird, who played the principal role in selecting Woods Hole, Massachusetts, as a center for marine research, and was the first director of the U.S. National Museum.

Material examined.—Holotype male, allotype female and 24 paratype males and 29 paratype females, collected 23 December 1985 and 22 December 1986, under storm tide debris, West Falmouth Harbor, West Falmouth, Barnstable County, Massachusetts. Additional specimens collected at the same locality: five adult females, 14 April 1990, eight adult females, 9 May 1989, and one adult male, 10 October 1990. A gravid female was collected 22 April 1990, in brackish marsh debris, Salt Pond, Falmouth. All above material

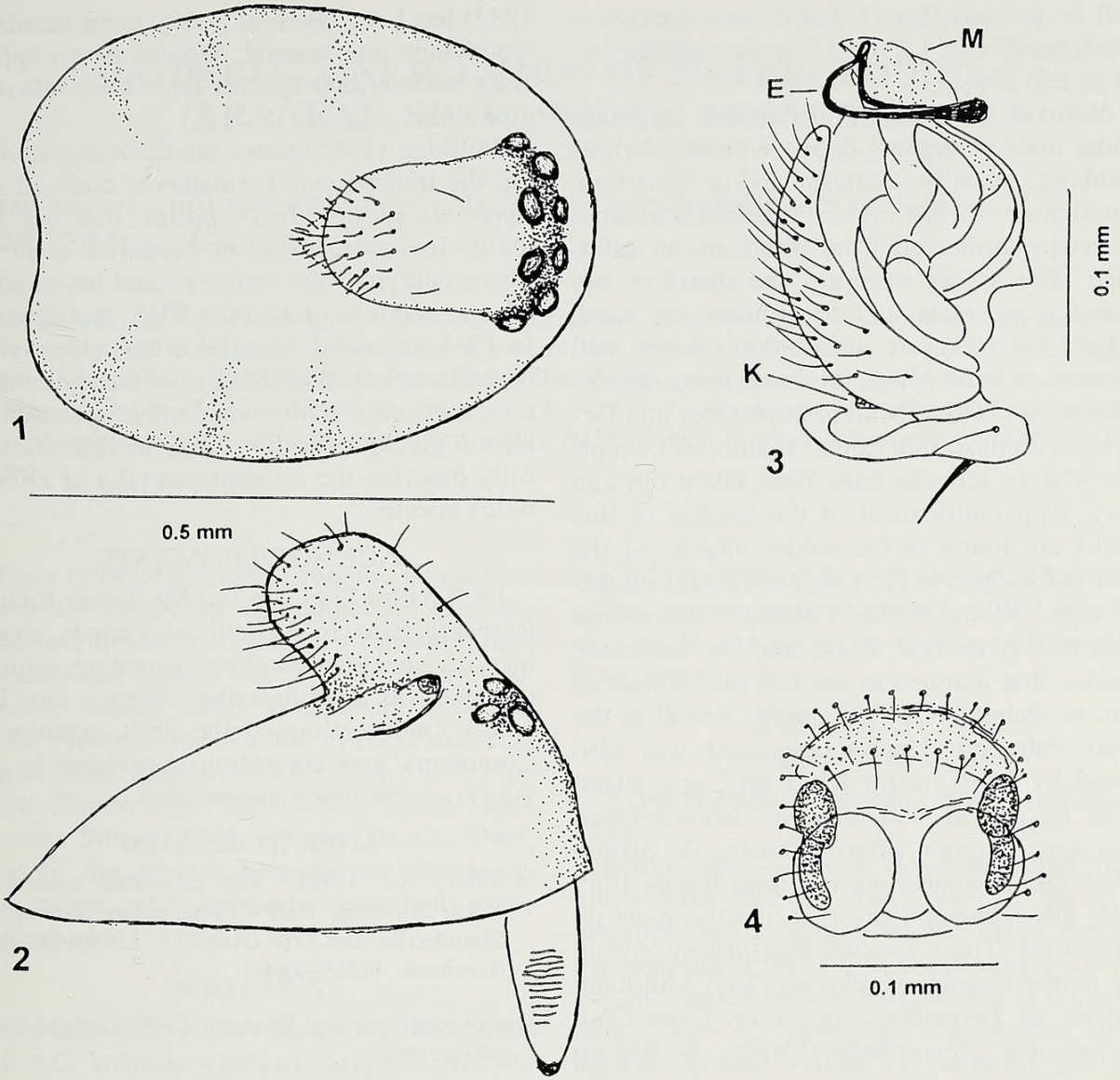
was collected by R.L. Edwards. In December 1995, and in April and May 1996, Miss Jacqui Kluft collected adult male and female and premature specimens in detritus at storm tide levels on the beach at Fire Island, New York.

Holotype male and allotype female, paratype males and females deposited in the United States National Museum, Washington, D.C.; paratype males and females in the Museum of Comparative Zoology, Cambridge, Massachusetts, in the American Museum of Natural History, New York and in the British Museum of Natural History, London.

Measurements were made with an ocular micrometer. The cephalic index is the length of the cephalothorax divided by the width. The TmI value is the ratio of the length of metatarsus I divided by the distance between the trichobothrium and the proximal end of the metatarsus.

Description.—Measurements (mm), means in mm and SD. *Female*: ($n = 12$). Total length 1.20 ± 0.057 , cephalothorax length 0.51 ± 0.031 , cephalic index 1.29 ± 0.082 , TmI 0.49 ± 0.022 , epigynum width 0.16 ± 0.009 . *Male*: ($n = 12$). Total length 1.17 ± 0.053 , cephalothorax length 0.53 ± 0.036 , cephalic index 1.24 ± 0.061 , TmI ratio 0.47 ± 0.024 , TmIV absent. Tibia without spines in male, in female 0-0-1-1.

Cephalothorax broad, light yellow-brown with thin, dark margin. Clypeal area and dome slightly darker. Eyes margined with black. Vague radii on thoracic portion but otherwise without distinctive markings (Fig. 1). Male with large dome on cephalic portion of cephalothorax, sloped to the rear (Fig. 2). Large sulcus at base of lobe with pit immediately behind posterior lateral eye. Chelicera with



Figures 1-4.—*Disembolus bairdi* new species. 1, Male cephalothorax, dorsal; 2, Male cephalothorax, lateral; 3, Left palp, ectal. Note the apparent conjunction of the distal tip of the tibial apophysis and the knob on the cymbium; 4, Epigynum, ventral. Abbreviations: E, embolus; K, knob-like process on cymbium; M, suprategular apophysis, membranous part.

four promarginal teeth, two retromarginal. Abdomen grey to black, rarely with indistinct chevrons on posterior half, venter lighter. Sternum with darker margin. Legs light yellow-orange. Palp (Fig. 3) with broad, relatively flat base of the embolus spiral with a recurved distal loop and projecting fan-like membranous suprategular process (Fig. 3). Cymbium with stout, darkened knob-like process that engages distal end of tibial apophysis (Fig. 3). Palpal tibia with a single trichobothrium, a stout seta, and recurved distal tip. Female cephalothorax without dome, colored essentially as male. Epigynum with broad, darker

mantle anteriorly (Fig. 4). Posterior plate glassy, with bilateral swellings. Spermathecae widely spaced, clearly visible. Spermathecal ducts not clearly visible.

Millidge (1981) provided partial keys for the males and females of *Disembolus*. For females (table 1), *D. bairdi* new species fits best under line 4, "with posterior plate notably convex and glassy in appearance, and with dark colored bar anterior to plate." For males (table 2), *bairdi* new species fits best under line 3, "Carapace with a lobe which has a hole and sulcus on each side," and under line 3-iv, "tibial apophysis with small hook distally." It

will be noticed that *D. bairdi* new species is much smaller (± 1.2 mm) than the species listed in this line.

Natural history.—This species is found under mats of organic debris without obvious webbing, usually *Zostera* and/or *Spartina*, found at or near the highest tide levels in areas otherwise protected from direct ocean influence. The spider occupies the interface between these mats and the underlying sand. When the mats are lifted the spiders will sometimes burrow into the sand. Immature instars were taken in March, September and October, with most individuals mature in December. Mature females have been taken through May. Apparently most of the species of this genus are found in the colder months of the year (Millidge 1981). It shares the highest tidal zone habitat with *Colonus americana* Chamberlin & Ivie 1944, another erigonine species that matures in the late fall. *Colonus* was as abundant as *Disembolus bairdi* in the West Falmouth Harbor area and was also found by Miss Jacqui Kluft on Long Island with *D. bairdi* and *Erigone brevidentata* Emerton. *Erigone alettris* Crosby & Bishop 1928, and *Grammonota trivittata* Banks 1895 were also abundant in or on detrital mats on Cape Cod. These species also mature during the colder months of the year. Two additional species of *Disembolus* occur on Cape Cod. *Disembolus sacerdotalis* (Crosby & Bishop

1933) has been taken in grassy areas in mixed woodlands and several females of an apparently undescribed species have been taken in pine litter.

Millidge (1981) notes the difficulty in seeing the transparent spermathecal ducts of *Disembolus* species. In *D. bairdi*, they are virtually invisible, even in prepared material. Three epigyna were removed and mounted in a lactic-acetic acid mixture, PVA, and euparal. In PVA mounted material what appeared to be wide-mouthed spermathecal ducts could be discerned only with considerable uncertainty. Histological preparations may be necessary to fully describe the internal genitalia of *Disembolus* species.

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Dr. Charles Dondale and Mr. James Redner, Research Branch, Agriculture Canada, examined my specimens and confirmed my opinion that this was an undescribed species. Eric Edwards kindly critiqued the draft manuscript. Comments and corrections provided by reviewers were much appreciated.

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