CONTRASTING DIURNAL AND NOC-TURNAL PERCHING SITES OF ISCH-NURA POSITA (HAG.) (ZYGOPTERA: COENAGRIONIDAE)

I. posita is a common coenagrionid damselfly often found in the lentic environments of Tarrant Co., Texas (J.V. ROBINSON, 1983, Am. Midl. Nat. 109: 169-174). Adult I. posita are usually found flying at intermediate heights amidst dense emergent or peripheral vegetation. This vegetation might provide protection from aerial predators such as birds and other odonates that attack from above, while the height of I. posita's activity above the water might reduce its risk from predators from below (e.g. frogs, fish and other arthropods). Also the vegetation might provide a microhabitat which is more shaded and protected from winds than less heavily vegetated areas.

Adult odonates are generally sexually dimorphic in their habitat use, but *I. posita* is atypical; both males and females are regularly found at the aquatic site during the day. Additionally, both sexes roost at night among the same vegetation that they are active amongst throughout the day.

No data have been published concerning the vertical distribution patterns of this species. We suggest that this distribution should tend to be higher during the night than the day and here provide data in support of this claim.

Data were collected during July and August of 1983 when 212 perch sites of *I. posita* were observed at a 0.3 ha pond located in Veterans Park, Arlington, Texas. These perch sites consisted of specific points along the stems of the marginal vegetation which included the following plant species: *Eclipta alba, Juncus diffusissimus, Ambrosia trifida, Paspalum* sp., *Eleocharis* sp., *Typha* sp. and *Ludwigia peploides*. The heights of these perching points above the soil or water surface were measured (Fig. 1), as were their distances from the apical ends of the stems. Of these perching sites, 71 were nocturnal roosting sites where individuals were usually so docile that they could be picked up by hand. All roosting sites were found with the aid of supplementary illumination and 2140 h was the earliest recorded time for such a site to be identified in this sample. The angle between the damselfly's abdomen and the stem was also approximated for each observation (Fig. 2). The sex of each individual contained within the sample was recorded.

Roosting sites, which are presumably maintained throughout the entire night, constitute less temporary positions in space than do diurnal perching sites which more reflect relatively short interruptions of the flight activity of these individuals. The duration of the roost and the apparent susceptibility of individuals during this time, should cause roosting sites to be judiciously chosen. Our results indicate that *I. posita* selects significantly (P < 0.01) higher roosting sites ($\bar{x} = 35.9$ cm, s =



Fig. 1. Diurnal and nocturnal heights of Ischnura posita.



Fig. 2 Angles between the stem perch and the abdomen of *Ischnura posita* individuals.

11.27 cm) than diurnal perching sites ($\bar{x} = 29.7$ cm, s = 14.60 cm). Rather than this being accomplished through a shift to higher plants it is due to a shift toward the apex of the stem (i.e., the mean distance from stem tip to the roosting point was 3.0 cm while the corresponding distance for perching sites was 10.6 cm, these are different at P < 0.01). Males and females both displayed these shifts and there was no significant difference between sexes. The roosting postures of *I. posita* (Fig. 2) tend to additionally elevate the organisms at night above normal diurnal perching positions.

The upward shift described may reflect an attempt by *I. posita* individuals to position themselves advantageously for capturing early sunlight radiation, thereby elevating their body temperatures faster for early activity (M.L. MAY, 1976, *Ecol. Monogr.* 46: 1-32). Or rather, it may be due to a release from predator pressure from above at night (i.e., birds and odonates are inactive) hence be a response to the relatively greater pressure from below of nocturnal predators.

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