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# OBSERVATIONS ON THE HABITAT OF *SATYRIUM KINGI* (LYCAENIDAE)


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From my field observations during the past four years, along with data gathered from other sources, I have come to certain conclusions regarding the breeding habitats, flight habits and foodplants of *Satyrium kingi* (Klots & Clench).

I first collected *Satyrium kingi* in Escambia County, Florida, near Cantonment. It was a single worn female, taken 2 August 1969. I was not sure of its identification until I compared it with material I collected in South Carolina in 1970.

In addition to the Florida spot, I have taken *kingi* at four localities in South Carolina: (1) at Givhans Ferry State Park in Dorchester County; (2) on the south side of Highway 642 where Dorchester and Charleston Counties meet, about 200 yards inside Dorchester County; (3) in Berkeley County at the Naval Weapons Station, near the golf course; and (4) in Charleston County just outside the south gate of the Air Force Base along Dorchester Road.

These five localities can be divided into two types. One type, including the Florida locality and the two in Dorchester County, South Carolina, will be referred to as group A. The other two localities are called group B.

The group A localities are wooded areas, with few or no flowers at the time *kingi* was taken. Although I have not personally observed ovipositing in any of the 40 or so females I have collected, nor have any oviposited after capture, still it is my belief that sweet gum (*Liquidambar styraciflua*) will prove to be a primary foodplant of *S. kingi*. Ninety percent of the females which were not taken at flowers were collected from the leaves of sweet gum saplings. The other ten percent were on the leaves of various other plants near sweet gum.

In all the group A localities *kingi* was found around the edges of old forests where sweet gum saplings grew. I believe that much the same situation may exist with *S. kingi* as with *Papilio aristodemus ponceanus* (Schaus), where the species depends on second growth forests around older forests as its habitat (Rutkowski, 1971). Man's efforts may hurt *ponceanus* by overprotecting hammocks from natural disaster such as fire or storm, or by clearing hammocks away for construction, but his works may actually help *kingi* by cutting roads, making fire lines and power line cuts through old or virgin forests, thus providing areas for sweet gum saplings to grow.

I first found *kingi* in South Carolina at the Highway 642 locality in 1970. That season I collected some 15 females but only one male (on Holly (*Ilex*)) at that locality. During the 1971 season I again collected female *kingi* at this spot and also took a very few specimens from the Givhans Ferry State Park, type A locality, all females. In 1972 the Highway 642 locality again yielded several females but no males. By this time I had noticed the marked affinity the females had for sweet gum. So when I visited the Givhans Ferry State Park spot in 1972 I moved my collecting efforts 20 yards from where I had collected the year before and found female *kingi* in good numbers in a stand of sweet gum saplings. However, I had still not found any more males in the type A areas in three years!

In June 1972, at the Givhans Ferry State Park locality, I noticed a small butterfly come darting from high in the top if a mature sweet gum down to the young saplings where I was collecting female *kingi*, then return to the taller trees. A little later either the same specimen or another one did the same thing. However, before it could fly up again I netted it and found it was a male *kingi*. A little later I noticed two males dart down in this fashion from their lofty perches then fly up again

accompanied by females (this occurred at about 1630 EDT). I never saw a pair in copula, but did observe their courtship flights. Female *kingi* fly fairly low, from 4 to 10 ft. above the ground, around sweet gum saplings in the type A areas. Males stay high in older trees darting down to the saplings to look for females. After finding a female, the male accompanies her in a flight nearly straight up into the older trees.

The group B localities are open areas with tall flowering hedges. These flowering hedges were three to four hundred yards from any forests, but a limited number of *kingi* were taken there of both sexes. Obviously, they were there simply as flower visitors, and not because of any suitable breeding habitat. In the B areas, male and female *kingi* fly in more equal numbers, with males being slightly more numerous. Adults were never observed investigating each other or engaging in courtship flights. In 1971 and 72 twelve specimens were taken from the B areas, eight of which were males.

A significant distinction between the group A and B areas is that although both males and females were taken at group B spots, the vast majority of specimens taken from group A areas were females, with only two males collected there. The great contrast between the A and B areas leaves little doubt that *kingi* was in the B areas only to visit flowers. The absence of flowers in the A areas along with the large number of specimens, mostly females, found there year after year is strong evidence that *kingi* breeds in the A areas.

Even in the A areas, which seem to be the preferred natural breeding habitat, *kingi* is local in occurrence. It is found most commonly only where sweet gum saplings grow, and rests on the leaves of this plant. S. *kingi* shows such a marked affinity for sweet gum that this tree is presumably a foodplant. I have never found *kingi* in much searching in any other type of habitat, except when visiting flowers.

The place to look for *kingi* is around the edges of old, well established forests. These may be mixed hardwood and pine forests or hardwood alone. The butterfly may be found whether these forests are in low swampy areas or rather dry areas going into open pine flats and forest.

Males stay high in older trees, not always sweet gum, except when visiting flowers, at which time they are easily caught. Even when visiting flowers *kingi* males like the higher blossoms. Female *kingi* do not seem to visit flowers as much as males. Females should be looked for on sweet gum samplings usually only 5 to 6 ft. from the ground.

All five of the areas where I have collected *kingi* represent coastal populations. *Satyrium kingi* was described in 1952 from the coastal population at Savannah, Georgia, by Klots and Clench. In the original description,

under the heading "Ecological Data," there are several items of interest. First, the Dorchester County locality in South Carolina can be described in almost the exact words used to describe the type locality (Klots & Clench, 1952, p. 15). Second, sweet gum (*Liquidambar styraciflua*) is noted as one of the plants found at the type locality. Third, as the collecting in the type locality was done while specimens were visiting flowers, more males should have been taken than females, and indeed the type series consisted of 5 males and 2 females, taken over a period of three years. It is also noted in the original description that specimens preferred the higher flowers they were visiting.

When describing *kingi*, Klots and Clench mentioned 5 specimens not included in the type series. These specimens were excluded from the type series "because of the danger of future subspecies confusion." Here in the original description a very important distinction is made between typical lowland (coastal) *kingi* and the inland or highland populations. (Klots & Clench, 1952, p. 8.) Klots and Clench saw the likelihood that northern inland populations of *kingi* might represent subspecifically distinct populations.

Mr. Lucien Harris Jr. in his recent book, "Butterflies of Georgia," stated that several years after *kingi* was described he too gave some thought to naming a subspecies from the inland areas of Georgia, but he decided to leave this to the "experts in this field."

If there is a subspecies involved in these highland populations the choice of foodplant is important. Because of this question, the relation of *S. kingi*, in my experience, to old forests and sweet gum, and its flower visiting and courtship flight habits, seem very relevant.

The northern (inland) population of *kingi* has been reared on Flame Azalea (*Rhododendron calendulaceum*) by Mr. John C. Symmes in the Atlanta, Georgia, area (Harris, 1972). Harris also notes that when H. L. King, for whom the species is named, collected *kingi* at the type locality he saw females ovipositing on a plant not related to Azalea, and that King did not find Azalea plants there. The ecological differentia between the lowland populations of *kingi* in Florida, Georgia and South Carolina, and those populations of inland and northern areas, along with the superficial differentia of those populations should be examined more closely by the experts, in my opinion.

Coastal *kingi* shares its habitat with a rather small number of butterflies. These species are rather uncommon and are usually considered good catches: *Autochton cellus* (Boisduval & Le Conte), *Poanes yehl* (Skinner), *Amblyscirtes aesculapius* (Fabricius), *Papilio palamedes* (Drury), *Satyrium calanus* (Hübner), *Satyrium liparops* (Le Conte),

*Asterocampa alicia* (Edwards) (following Reinthal, in Harris, 1972), *Asterocampa clyton* (Boisduval & Le Conte), *Lethe creola* (Skinner), *Lethe portlandia* (Fabricius), *Lethe appalachia* (Chermock), and *Euptychia gemma* (Hübner).

In the highland and inland areas *kingi* is on the wing in July and August. In the coastal areas of South Carolina and Georgia it flies in May and June. The late date of the one specimen I collected in coastal Florida (Aug. 2) may very well mean that *kingi* is double brooded there.

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## NOTES AND NEWS

As a result of the recent election, it is a pleasure to announce that Norman D. Riley was overwhelmingly approved by the membership as an honorary life member of the Lepidopterists' Society. The newly elected officers of the Society are listed inside the front cover. In addition, Dr. W. Donald Duckworth was elected as the Jordan Medal Representative, and the proposed constitutional amendments (see Vol. 27, p. 241) were passed.