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The affinities of the falconid genus *Spiziapteryx*.—The Spot-winged "Falconet," *Spiziapteryx circumcinctus*, the only species of its genus, is restricted to the rather dry chaco and monte areas of Argentina where it is apparently rare. It was first described in 1852 by Kaup, who placed it in the genus *Harpagus*, although he considered it distinct enough to merit its own subgenus for which he proposed the unfortunate name *Spiziapteryx*. Sclater (1862) briefly reviewed the history of this bird and ventured to doubt that it belonged with *Harpagus*, deeming it "safer to use for it the generic appellation *Spiziapteryx*, or leave it under the more general designation of *Falco circumcinctus*." Sharpe (1874) included *Spiziapteryx* in a subfamily Falconinae, which then embraced several genera of Accipitridae. He placed *Spiziapteryx* between the falconid genus *Polihierax* and *Falco novaezealandiae*, which species he placed in the monotypic genus *Harpa*. Martorelli (1900) discussed the relationships of *Spiziapteryx* and concluded that the bird was so distinct from *Harpagus* that it deserved its own subfamily, the "Spiziapteryxinae" (sic). His conclusions were based entirely on external features and his comparisons were evidently made chiefly with *Harpagus*, which is now known to belong to the Accipitridae.

The modern concept of the Falconidae and its various subfamilies has emerged largely through the work of Suschkin (1905). His study was based on the examination of skeletons of 140 species of Falconiformes. His list of material examined does not include *Spiziapteryx* and clearly his determination of its relationships was based on external characters only. Suschkin recognized four subfamilies of Falconidae: Herpetotherinae for the two primitive neotropical forest-dwelling genera *Herpetotheres* and *Micrastur*; Polyborinae for the exclusively New World caracaras of which four genera are usually recognized (*Polyborus*, *Phalcobaenus*, *Daptrius*, and *Milvago*); Falconinae for several genera now included in the single cosmopolitan

genus *Falco*; and Polihieracinae for the two Old World genera of falconets *Polihierax* and *Microhierax* along with the New World *Spiziapteryx*.

The treatment of Peters (1931) was essentially identical except that he included the neotropical genus *Gampsonyx* in the Polihieracinae. A similar classification was adopted by Hellmayr and Conover (1949: 288) who commented that *Spiziapteryx* seemed to have "very close affinities to *Gampsonyx*, *Polihierax*, *Microhierax*, and *Neohierax* [now usually included in *Polihierax*], and should be kept in the same group." Since then it has been shown that *Gampsonyx* does not belong in the Falconidae, and it is now thought to be a kite (Accipitridae) not far removed from *Elanus* (Friedmann 1950, Plótnick 1956, Clay 1958, Stresemann 1959, Brodkorb 1960).

The most recent classification of the Falconidae is that of Brown and Amadon (1968). They refrained from using formal subfamilial divisions of the family but instead recognized two major "groups" of falconids. The first of these, the "aberrant Neotropical falcons," contains *Herpetotheres*, *Micrastur*, and the four genera of caracaras. The second group comprises two subgroups; the true falcons (*Falco*) and the falconets (*Microhierax*, *Polihierax*, and *Spiziapteryx*). The genera of this last subgroup were thought to be closely related, *Spiziapteryx* being said "scarcely to be separated generically" from *Polihierax*.

The small size and the toothed bill of *Spiziapteryx*, together with the resemblance of its streaked crown and white rump to females of *Polihierax insignis*, probably account for its having been associated with the Polihieracinae rather than the neotropical endemics, none of which has a toothed bill. In contrast to the other members of the Polihieracinae, *Spiziapteryx* is not sexually dimorphic, does not have a distinctive juvenal plumage, and is heavily streaked below rather than immaculate. Taken by themselves, these differences would probably not be considered significant, but examination of three skeletons of *Spiziapteryx* in the Smithsonian Institution collections bears out the distinctiveness of the genus and reveals that it cannot be allied to the Polihieracinae but must instead be counted among the aberrant neotropical genera.

In *Spiziapteryx* the maxillopalatines are highly inflated and cancellous, largely filling the vacuity between the lacrimal and the rostrum. In this respect it agrees with *Herpetotheres*, *Micrastur*, and the caracaras and differs from *Falco*, *Polihierax*, and *Microhierax* in which the maxillopalatines are reduced noncancellous cups or shelves. The interorbital septum is less ossified in *Spiziapteryx* than in any of the other genera of falconids except the caracaras, to which it is similar. The development of the superciliary process of the lacrimal in *Spiziapteryx* is intermediate between the reduced condition characteristic of the caracaras and the greater development seen in the other genera of Falconidae.

Spiziapteryx, *Herpetotheres*, *Micrastur* and the caracaras all have a well-developed procoracoid foramen set within the procoracoid process well away from the internal margin of the bone. In *Polihierax*, *Microhierax*, and *Falco* this feature is represented by a notch placed lower on the internal margin of the procoracoid, either open or closed off only by a tenuous thread that may or may not be ossified.

The tarsometatarsus of *Spiziapteryx* is quite distinct from those of all falconid genera except the caracaras; except for its smaller size it is scarcely separable from the tarsometatarsus of *Milvago*. The tarsometatarsi of *Spiziapteryx* and the caracaras are distinguished from those of other falconids by their very long slender proportions and by the short ridge of the hypotarsus, the distal end of which is set off abruptly from the shaft. In other falconids, including *Polihierax* and

Microhierax, the tarsometatarsus is shorter and heavier and the ridge of the hypotarsus is long, its distal end tapering very gradually into the shaft.

These characters indicate that *Spiziapteryx* has no affinity with the Polihieracinae and that it belongs with the other genera of falconids endemic to the Neotropics. Such a treatment is also in better accord with the geographic distribution of the various forms. Nothing indicates that *Spiziapteryx* is particularly closely related to either *Herpetotheres* or *Micrastur*; the characters it shares with these genera are also found in the caracaras and are probably primitive. In the conformation of the tarsometatarsus, the interorbital septum, and to a lesser extent the lacrimal, *Spiziapteryx* is markedly similar to the caracaras. The overall shape of the skull is not elongate as in the caracaras, but instead is more similar to that of *Falco* and the true falconets. Likewise the toothed bill is shared with that group, although the development of the "tooth" appears to be rather variable in *Spiziapteryx*, as in some individuals it is only an indistinct sinuation in the tomium. *Spiziapteryx* thus belongs with the "aberrant Neotropical falcons," within which group it is closest to the caracaras. It also exhibits certain similarities to the true falcons. Its nature is such as to affirm the essential correctness of Brown and Amadon's hesitance to recognize subfamilies within the Falconidae, as apparently no group of genera share enough unique characters to merit their separation from the other members of the family.

Unless one regards the endemic neotropical genera as relicts, it would appear that much of the evolution and history of the Falconidae took place in South America. The true falcons (*Falco*) seem to have been derived from the primitive neotropical forms, perhaps through a stage similar to *Spiziapteryx*, and then secondarily gave rise to the falconets of the Old World.

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California Condors soaring into opaque clouds.—At 1430 on 24 March 1965 I saw an adult California Condor (*Gymnogyps californianus*) soaring south about 100 feet above a north-south ridge line in the Sespe Condor Sanctuary in Ventura County, California. The altitude of the ridge top was about 4000 feet above sea level. When the condor reached my position it began circling for altitude. It then headed northwest, gained altitude, and went out of sight into opaque stratus clouds at an altitude of approximately 5000 feet. Later in the afternoon an equipment operator, William Nun, reported seeing five condors "circle into the clouds" about 2 miles south of where I saw my bird.

Fred Harris (pers. comm.), a sailplane instructor at Tehachapi, California, watched a condor rise within a thermal and enter the base of a cumulus cloud at an altitude of 15,000 feet in 1967. Heintzelman (1974, Auk 91: 849) points out that few observations of this phenomenon are recorded.—JOHN C. BORNEMAN, *2208 Sunridge Drive, Ventura, California 93003.* Accepted 31 Mar. 75.

Feeding segregation in the Arctic and Common Terns in southern Finland.—The competitive exclusion principle suggests that two species cannot exactly overlap in their ecological requirements if they coexist in the same areas (Hardin 1960). One species will be more efficient in using the same limited environmental resources and therefore eventually replace the other.

The Arctic (*Sterna paradisaea*) and Common (*S. hirundo*) Terns breed sympatrically in the Baltic Sea and the aim of this study was to compare the food composition of the tern species in the middle archipelago zone of southwestern Finland (60° 35′ N, 21° 10′ E), where both tern species nest side by side on the same rocky islets.

The Arctic and Common Terns are spatially segregated for their first 2 years of independent life and also later for some months in winter time (Salomonsen 1967, Elliott 1971). The segregation may lead to differences in the ecological requirements of the species prevailing also in their sympatrical breeding areas. For this reason, it is hard to say how important the role of the competitive exclusion is in the breeding ecology of the Arctic and Common Terns and it should be more convenient to ask how much overlap of resource use is tolerated by the species (Cody 1974).

The Baltic differs from oceanic environments in having insignificant tides, low salinity, low productivity, and low number of species (Janson 1972). Climatic conditions are less severe in the Baltic than on oceanic coasts. For these reasons, the Finnish archipelago as a feeding environment greatly differs both from oceanic coasts and inland lakes where most of the studies on breeding ecology of terns have been done.