THE TIGER-HERONS (TIGRISOMA) OF ARGENTINA

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The monumental "Catalogue of Birds of the Americas" (Hellmayr & Conover, 1948) list two forms of Tigrisoma from Argentina, both considered subspecies of the same species: Tigrisoma lineatum marmoratum and Tigrisoma lineatum fasciatum. That work states (1948:224, footnote) that fasciatum "agrees with T. l. marmoratum in dimensions, but differs in that the upper parts of the head and neck are black instead of chestnut", adding that the black-crowned variant of marmoratum (so-called bolivianum) is "hardly distinguishable from fasciatum". These statements are misleading or incorrect. T. fasciatum differs in many respects (including dimensions) from all color variants of T. l. marmoratum; the two forms, far from being representative subspecies, appear to overlap geographically in both Argentina and Brazil. Owing to the extreme rarity of fasciatum in collections, students have been misled by the treatment and comment in Hellmayr & Conover, especially as the work usually relied upon for identification, the "Catalogue of Birds in the British Museum" (Sharpe, 1898), fails to give a reliable diagnosis or a correct description of the adult plumage.

My study of this genus indicates that T. fasciatum is a species distinct from T. lineatum, but conspecific with the T. salmoni complex -- a treatment already adopted, on my suggestion, by recent works of Olrog (1963) and de Schauensee (1964). The best clue to this relationship was in a paper by A, R. Zotta (1935) in El Hornero, mentioning that a specimen of fasciatum taken in Misiones, Argentina, had interscapular powder-down patches, such as W. de W. Miller (1924) had said were present in T. salmoni but absent in T. lineatum. The description of this specimen (Zotta & da Fonseca, 1936: 242, 245) is the most accurate account of the adult plumage of fasciatum that I have seen in the literature. The female described had a short exposed culmen (78 mm) and tarsus (88 mm) like salmoni, but had longer wings (330 mm) and tail (130 mm). In color it also closely resembled salmoni, differing chiefly in deeper rufescent abdomen, and in the presence of a short, narrow strip of feathering extending over the base of the lower mandible to a point a little beyond the front of the orbits, really a continuation of the short feathers bordering the sides of the throat. This mandibular feathering was long ago reported as characteristic of fasciatum and absent in salmoni (Sclater & Salvin, 1869, 1875).

One adult female in the American Museum of Natural History (New York), taken at Chapada, Mato Grosso, Brazil, agreed in the dimensions and color pattern described for the Misiones bird; it had been assigned originally to

fasciatum (Allen, 1893), and subsequently been allocated to T. l. marmoratum (Naumburg, 1930), and bore recent label identifications as salmoni. However it differed from our many specimens of adult salmoni in larger size, strip of feathering on lower mandible, more rufescent abdomen, more blackish sides of head, and wider black interspaces between the narrow buff bars on neck and mantle. Besides, salmoni, a species of western South America, was unknown from Brazil. The description of "adult" fasciatum in the British Museum Catalogue (Sharpe, 1898) mentioned barring on crown and flanks -- absent in the Mato Grosso example -- but these features suggested that the British Museum specimen was an immature individual. A check of the original description of fasciatum (Such. 1825 b) —taken, according to an earlier paper (Such, 1825 a) in the mountainous region of the state of Rio de Janeiro above the low plains of Goaytacazes (= vicinity of Campos, fide O. Pinto) - showed agreement in measurements and color pattern with the Misiones and Mato Grosso examples. Since these specimens agreed with fasciatum, yet were very similar to salmoni in appearance and in the structural characteristic attributed to that form (see Hellmayr & Conover, 1948; 219, footnote), it seemed to me likely that the forms were conspecific.

MATERIAL EXAMINED AND ACKNOWLEDGMENTS

As I was unable to trace in the museums of the United States any specimen of fasciatum other than the Mato Grosso example, and the type seemed to be lost, I wrote to the leading museums of Europe and South America in an effort to check the diagnostic characteristics of adult fasciatum. From Argentina I received very substantial assistance. C. C. Olrog sent me photograhs, description, and measurements o fanother female of fasciatum, taken by J. Mogensen at Bonpland, Misiones, on March 14, 1912, which is in the collection of the Instituto Miguel Lillo at Tucumán. This example, because of the identity of the collector and of the place and date of collection, as well as the close resemblance in appearance and dimensions. Olrog had at one time (1951) believed to be the specimen described by Zotta (1935). Misled by the comments of Hellmayr & Conover (1948) that fasciatum had the same dimensions as marmoratum (a very long-billed form), Olrog (1951, 1959) had recorded the bird as T. salmoni brevirostre Sztoleman, but meanwhile had changed his opinion (1963). He also sent me photographs, and later lent me specimens, of T. salmoni brevirostre from Cochabamba, Bolivia, and of T. salmoni pallescens Olrog (1951), described by him from Salta. J. R. Navas kindly sent for examination Zotta's specimen of fasciatum, which belongs to the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia". Examples of T. l marmoratum collected in Misiones by W. H. Partridge provided very useful comparison. J. A. Haedo Rossi gave me information supplementing his 1958 paper on T. l. marmoratum.

As I have in preparation a more elaborate paper reviewing the genus, I shall not list here all the ornithologists who replied to my inquiries. For

present purposes I should state that through the courtesy of E. Stresemann of the Berlin Zoologisches Museum and of J. Macdonald and D. Goodwin of the British Museum (Natural History), I was able to examine three examples of fasciatum from southeastern Brazil in different stages of immaturity, including the bird erroneously designated adult in the British Museum Catalogue (Sharpe, 1898), which is pictured in "Exotic Ornithology" (Sclater & Salvin, 1869 : pl. 92). These three specimens showed mandibular feathering, interscapular powder-downs, and relatively short culmen like other specimens of fasciatum examined by me. I received, in addition, detailed descriptions and measurements of six adult fasciatum, in definitive or almost definitive plumage, in the museums of the cities mentioned after the names of the following cooperating ornithologists: H. B. Cott, Cambridge, England; E. Nowak, Warsaw, Poland; O. Pinto, São Paulo, Brazil; J. Steinbacher, Frankfurt-am-Man, Germany; K. H. Voous and E. Wattel, Leiden, Netherlands. All adult specimens (except posibly two without locality label) had been taken in Brazil; they agreed with the Misiones and Mato Grosso examples in color features, mandibular feathering, and short culmen * (77-88 mm) and tarsus (87-96 mm). I did not ask my correspondents to undertake the tedious task of checking for interscapular powder-downs.

Other taxa of Trigrisoma, except for pallescens (of which I have seen two examples) are adequately represented in the American Museum of Natural History or in other collections in the United States. Even of the rare black-crowned color variant of T. l. marmoratum, so-called T. bolivianum (Lönnberg), I was able to examine two of the three specimens reported in the literature.

I am indebted to D. Amadon for reading this paper and making clarifying suggestions, to W. H. Partridge for translating the summary, and to numerous ornithologists, including those mentioned above and many others, for help in this study.

DISCUSSION

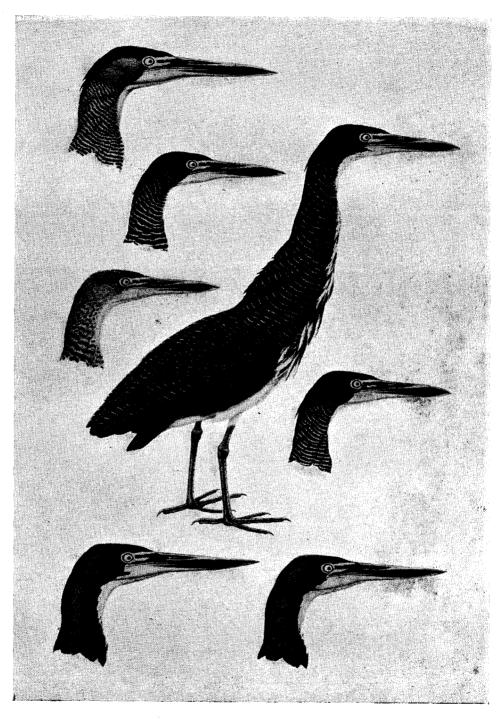
T. fasciatum (Such) agrees with T. salmoni Sclater & Salvin in all features in which salmoni differs from the two other species of Tigrisoma, T. mexicanum and T. lineatum. T. mexicanum is immediately separated by completely bare throat. From T. lineatum (both its northern race lineatum and its southern race marmoratum), T. fasciatum and salmoni differ in all plumages in possessing interscapular powderdowns, in relatively short bill with somewhat arched culmen, and in relatively shorter tarsus; in definitive adult plumage by having black crest and crown, slaty sides of head, blackish neck and mantle with widely separated narrow buffy barring, unbanded slaty flanks, much less distinctly barred slaty and white under wing-coverts, and tawny to rufescent abdomen. In contrast, both races of the species T. lineatum lack interscapular powder-downs, have long attenuated bill with

^{*} All culmen measurements in this paper refer to exposed culmen.

essentially straight culmen, relatively longer tarsus (if birds of the same sex and age stage are compared), and in definitive adult plumage have crest. crown, sides of head, and neck chestnut-rufous, mantle closely barred or vermiculated with blackish and buff, slaty flanks and under wing-coverts sharply and distinctly banded with white, and abdomen gray, often (but not always) with ochraceous tinge. The rare black-crowned variant of T. l. marmoratum, originally described from Bolivia by Lönnberg (1903) sub nom. Heterocnus bolivianus, is, judging from his detailed account, exactly like ordinary marmoratum of the same area, both in dimensions and rufous color of crest, sides of head, and neck, and differs only in black crown. Many specimens of both nominate lineatum and marmoratum have black forehead and more or less black streaking on crown. I have examined two examples reported as T. bolivianum (Wetmore, 1922) from Corrientes, Argentina and Paraguay, nov in the U.S. National Museum; they agree well with the bird described by Lönnberg and show all characteristics (excep for black crown) that separate the usual marmoratum from fasciatum. There is thus no justification for regarding "bolivianum" as morphologically close to fasciatum, which Hellmayr & Conover (1948) intimated.

Only in one feature is fasciatum more like marmoratum than like any other form of Tigrisoma— the extension of the lateral gular feathering a short way over the base of the lower mandible. But this cannot be deemed a specific character, for the northern representatives of each, salmoni and nominate lineatum, have wholly base mandibles. However occasional examples of both salmoni and lineatum may show a trace of such feathering, as well, as other features sugestive of intergradation with their respective southern allies. In wing and tail measurements fasciatum is larger than salmoni, just as marmoratum is larger than lineatum, but T. f. pallescens Olrog of northwestern Argentina, although apparently closest to salmoni in absence of feathering on the mandible and in somewhat lighter abdominal color than fasciatum, is considerably larger than salmoni in all dimensions and seems to run larger than fasciatum as well.

Geographically salmoni, fasciatum and pallescens appear to replace each other in the forested humid montane districts of South America. There is a geographic overlap between this complex — which I regard as the species T. fasciatum (Such's 1825 name being the oldest — and the members of the T. lineatum complex, lineatum and marmoratum. In general the members of the fasciatum complex seem to favor rapid streams in mountainous, or at least hilly, humid forest, although the data are scanty, especially for the rare fasciatum. According to Olrog (in litt.), salmoni in Bolivia occupies streams and torrents in the same biotope as Merganetta and Cinclus, and he believes this is also the habitat of pallescens in northwestern Argentina. The type of fasciatum came from a montane region, and the most recent specimen definitely known to me was taken along the rapids of a tributary of Rio Paraná, at Salto do Cobre, Rio Ivahy, Paraná, Brazil. It is very likely that salmoni and pallescens will be found to intergrade in southern Bolivia.



The genus Tigrisoma. Full figure in center: T. f. fasciatum, definitive ad. Q. Heads: Upper left, T. mexicanum, definitive ad. Q. Second left, T. f. fasciatum, *intermediate stage > A. Third left, T. f. fasciatum, juvenal. Middle right, T. f. salmoni, definitive ad. Q. Lower left, T. lineatum marmoratum, definitive ad. Q. Lower right, T. lineatum lineatum, definitive ad. Q. From a drawing in color by Guy Tudor.

I am disinclined to give taxonomic standing to *T. salmoni brevirostre* (Sztolcman, 1926), described from southern Peru and reported also from Bolivia, because the only character is supposedly smaller bill size, and I have seen examples of adult *salmoni* from Colombia (the source of the type of *salmoni*) with bills as small. It should be noted that genus *Tigrisoma*, bill length varies with sex and age. Adult males tend to have the culmen abouth ten per cent longer than adult females, and fully feathered and fledged juvenals possess much shorter bills than older birds of the same sex. It is likely that the bill continues to grow for about a year after hatching (see Haedo Rossi, 1958).

The species T. lineatum shows very considerable geographic overlap with the species T. fasciatum, although their respective preferred biotopes seem generally to differ. T. l. lineatum overlaps T. f. salmoni in Costa Rica, Panamá, and western South America from the Andean slopes of Colombia and Venezuela to Peru and, perhaps, northern Bolivia; and T. l marmoratum overlaps, T. f. pallescens in northwestern Argentina, and T. f. fasciatum in southeastern Brazil and Misiones, and, based on one record, in Mato Grosso. As we have no breeding data for any member of the T. fasciatum group and do not know the extend, if any, of migration or occasional wandering, the amount of breeding overlap remains uncertain. No member of the T. fasciatum group has so far been reported from Paraguay. The T. lineatum complex usually favors wooded or marshy borders of more slowmoving rivers, swamps, and lakes.

ARGENTINE FORMS

Tigrisoma lineatum marmoratum (Vieillot)

Ardea marmorata Vieillot, Nouv. Dict. Hist. Nat., nouv. éd., 14, p. 415, 1817 (ex Azara, nº 353). — Paraguay (descr. of young).

Rufescent Tiger-Heron. "Hocó colorado"

Distribution. — In Argentina throughout the north (including Misiones, Salta, and Tucumán) to Entre Ríos, Santa Fe and Santiago del Estero, casually (fide Olrog, 1963) to Mendoza and Buenos Aires. Eggs were taken by Venturi at Barracas al Sur, Buenos Aires, and in Chaco. Elsewhere in eastern and southern Brazil from Piauí and Maranhão through Bahia, Goiaz, Minas Gerais, Rio de Janeiro, São Paulo, Paraná to Rio Grande do Sul and Mato Grosso; Uruguay, Paraguay, eastern and central Bolivia. Replaced by the smaller T. l. lineatum in Amazonia and northward to Honduras.

Diagnosis. — In all plumages lacks interscapular powder-downs, has feathering along middle of throat, and shows short strip of feathering at base of lower mandible, culmen straight and long (except in very young birds): &&, wing 304-360, culmen 98-120; &&, wing 306-330, tarsus 93-110 mm. In definitive adult plumage crest, crown (normally), sides of head, and neck rufous-chestnut; mantle finely vermiculated or stippled blackish and buff; abdomen slate gray, often tinged with ochraceous: flanks slaty, sharply banded with white. Less mature birds show some black bars on neck. In intermediate stages neck is

more evenly barred black and buff, and blackish mantle has wider pale rusty barring, but cap is rufous. In juvenal plumage and a very similar succeeding stage —perhaps worn until bird approaches a year old (see Haedo Rossi, 1958)— all species of Tigrisoma show a very similar aspect, a "tiger" pattern of coarse tawny and brownish-black bands on upper parts and sides of neck, the banding more wedge-shaped on cap, and light areas more rufous on cap and nape; breast and abdomen whitish washed with buff, more or less marked with dusky bars and wedge-shaped spots; flanks slaty, banded with white. The presence of a distinct feathered strip at base of lower mandible separates marmoratum from all other forms except fasciatum, which ordinarily has culmen less than 95 mm; some recently fledged marmoratum may have culmen ca. 80 mm, or possibly less, and positive separation requires check as to interscapular powder-down.

Tigrisoma fasciatum fasciatum (Such)

Ardea fasciata Such, Zool. Journ., 2, nº 5, p. 117, April, 1825. Brazil.
Fasciated Tiger-Heron, "Hocó oscuro"

Distribution. — In Argentina known only from two females taken at Bonpland, Misiones, on March 14, 1912. Elsewhere recorded chiefly (but specimens few) from southeastern Brazil, states of Río de Janeiro to Río Grande do Sul, and one adult from Mato Grosso.

Diagnosis. — In all plumages has interscapular powder-downs, feathering along middle of throat, relatively short, somewhat arched, culmen; distinguished from other races of the species by distinct short strip of feathering at base of lower mandible. In definitive adult plumage crest and crown black; sides of head blackish slate; neck and mantle blackish with broad interspaces (ca. 7-12 mm wide) separating very narrow buff to rusty bands; abdomen tawny-rufous; flanks uniform slaty without banding. Less mature birds (such as two from Misiones) show some buff barring on sides of head and traces of white banding on flanks. Intermediate stages have blackish head with distinct narrow bars of pale rusty, neck and mantle show wider pale barring than in adult birds, flanks are banded with white, the young "tiger" aspect is distinguishable from other races of the species by the presence of the mandibular feathering; separation from very young T. l. marmoratum with short culmen may require check for interscapular powder-downs. The two young examples of fasciatum seen have less distinct banding on flanks and under wing-coverts than usual in marmoratum, because of more extensive white on tips and edges of feathers (a characteristic also of salmoni, and noted in the one juvenal pallescens examined). Measurements (13): 33, wing 325. 335 culmen 86-88; 99, wing 310-330, culmen 75-78; not sexed, wing 305-320, culmen 75-92 mm.

Tigrisoma fasciatum pallescens Olrog

Tigrisoma salmoni pallescens Olrog, Acta Zool. Lilloana, 9, p. 471, 1951 ("1950") — Quebrada El Pilón, río Los Alisos, Salta, Argentina.

Fasciated Tiger-Heron. "Hocó oscuro"

Distribution. — Recorded only from northwestern Argentina (Salta and Tucumán). Described from two examples taken in Salta (Olrog, 1951), one of which I have seen; a juvenal male from Concepción, Tucumán, found in collection of American Museum of Natural History in plainly this form. Giai (1951) ascribed an adult and "juvenile" taken in Salta to T. salmoni brevirostre, with some hesitancy (apparently unaware of Olrog's description of pallescens); the description and locality indicate that they are probably also pallescens.

Diagnosis. — Similar to T. f. fasciatum, but lacking feathering on lower mandible, lighter (more tawny, less rufous) below,, apparently averaging larger, perhaps with buff barring of neck and mantle somewhat less widely separated. With so few specimens known the range of variation is very uncertain, but specimens run distinctly larger than salmoni of same sex and age. Measurements: 33, wing 364, culmen 95; 9 (Giai, 1951), wing 306, culmen 79; juv. unsexed, wing 330, culmen 93 (Tucumán specimen); wing 311, culmen 94,5 mm (Giai, 1951).

In the American Museum of Natural History (nº 6628) there is one puzzling juvenal specimen of Tigrisoma, formerly a mounted bird, which bears on an old label "Río de la Plata" (the former name for Argentina), with the number "44907" and the identification "Tigrisoma tigrina Bp."; a later American Museum of Natural History label indicates that the specimen came from the Verreaux Collection. Although this faded specimen is large, with very long culmen (106-107 mm tip broken), since it has interscapular powderdowns, the locality would suggest assignment to pallescens. However the entire throat (as well as the lower mandible) is bare, which is the diagnostic character of the Middle American species, T. mexicanum. Moreover there is white barring on the terminal half of the inner webs of the outer primaries, a feature usually present in the juvenal primaries of T. mexicanum, but absent in all specimens of the T. fasciatum complex examined by me. As the gular area of this old skin was obviously partly torn and then sewn back, the possibility had to be considered that the original throat feathering had been rubbed off. A microscopic examination made for me by Dr. W. G. George revealed no traces of feathers on the throat. I am therefore of the view that this is merely an example of T. mexicanum, with an erroneous label locality. This is not at all surprising, for the Verreaux Brothers were dealers in Paris, not South American collectors.

BEHAVIOR

Very little has been published as to the behavior of tiger-herons in the wild. Even the last qualifying phrase would have to be omitted, but for the detailed and valuable study of T. l. marmoratum made in the Zoological Garden of Buenos Aires by Haedo Rossi (1958). As to the T. fasciatum complex there appears to be no information even regarding nest and eggs. One of the captive pairs of T. l. marmoratum is reported to have had two broods in several years, but we do not know whether this occurs under natural conditions. Much remains to be learned as to the ecology and habits of all forms of Tigrisoma. Students in Argentina, where distinct populations are found, are in a favorable position to add to ornithological knowledge.

SUMMARY

- 1. The tiger-herons (Tigrisoma) known from Argentina are reviewed and their relationships, diagnostic features, and known ranges are indicated.
- 2. Tigrisoma fasciatum (Such) is shown not to be a subspecies of Tigrisoma lineatum (Boddaert), (as treated in "Catalogue of Birds of the Americas"), but is a close ally of T. salmoni and pallescens, with which it is here regarded as conspecific. The specific binomen of the complex becomes T. fasciatum, as the earliest name.
- 3. The species T. fasciatum "Hocó oscuro" (including its three races, fasciatum, salmoni and pallescens) differs from the species T. lineatum "Hocó colorado" (including its two races lineatum and marmoratum) by having in all plumages interscapular powder-downs, and relatively short and stout bill, with somewhat arched culmen; and in definitive adult plumage black crest and crown, slaty sides of head, blackish neck and mantle with narrow buff to rusty barring, widely separated by broad blackish interspaces; and plain slaty flanks. In definitive adult plumage the species T. lineatum has rufouschestnut head and neck, finely and closely vermiculated blackish and buff mantle, slaty flanks sharply banded with white.
- 4. The rarity of specimens of T. f. fasciatum, the failure of the books to describe adequately the diagnostic features of the definitive adult plumage, and the frequent difficulty of separating young birds from young of T. l. marmoratum without checking for interscapular powder-downs (a character first noted by Zotta), have caused many misidentifications.
- 5. The following races of Tigrisoma are recorded from Argentina: T. lineatum marmoratum (Vieillot), throughout lower elevations in northern Argentina where habitat is suitable, south at least occasionally to Mendoza and Buenos Aires. T. fasciatum fasciatum (Such), known in Argentina from two examples taken at Bonpland, Misiones on the same date; otherwise recorded only from southern (chiefly southeastern) Brazil. T. fasciatum pallescens Olrog, known only from northwestern Argentina in Salta and Tu-

cumán, but probably of wider distribution. The Argentine specimen attributed in the literature to T. salmoni brevirostre Sztolcman are regarded as actually fasciatum (Misiones specimens) or pallescens (Salta specimens); brevirostre is considered a synonym of T. f. salmoni Sclater & Salvin, ranging from Costa Rica and Panamá through the mountain slopes of western South America from Colombia and Venezuela to Bolivia. "T. bolivianum (Lönnberg)", recorded from Corrientes, is regarded as merely a rare black-crowned variant of T. l. marmoratum, with which it agrees in other color characters and in structural features.

RESUMEN

Los hocoes ("Tigrisoma") de la Argentina. — 1. El presente trabajo es una revisión de los hocoes (Tigrisoma) de la Argentina; se señalan sus relaciones, caracteres diferenciales y distribución geográfica.

- 2. Se demuestra que Tigrisoma fasciatum (Such) no es una subespecie de T. lineatum (Boddaert), (como figura en el "Catalogue of Birds of the Americas"), sino una forma muy afín a T. salmoni y pallescens, con las cuales se le considera aquí específicamente relacionada. Como T. fasciatum es el nombre más antiguo, éste pasa a ser, por lo tanto, el nombre específico del complejo.
- 3. La especie T. fasciatum, "Hocó oscuro" (con sus tres razas, fasciatum, salmoni y pallescens) se diferencia de T. lineatum, "Hocó colorado" (con sus dos razas, lineatum y marmoratum), por tener, en todos los plumajes, polvo-plúmulas interescapulares; un pico relativamente corto y fornido, con el culmen algo curvo; y en el plumaje definitivo del adulto, la corona y cresta negras, costados de la cabeza apizarrados, cuello y dorso negruzcos con finas bandas transversales ante-ferruginosas, separadas por anchas bandas negruzcas, y flancos de color apizarrado uniforme. En el plumaje adulto definitivo, la especie T. lineatum tiene la cabeza y el cuello de color castaño rojizo, dorso finamente listado, con listas vermiformes negras y ante, y costados apizarrados con bandas blancas.
- 4. La escasez de ejemplares de *T. f. fasciatum*, la falta en la bibliografía de una descripción exacta de los caracteres del plumaje adulto definitivo, y la frecuente dificultad para separar los ejemplares jóvenes de los jóvenes de *T. l. marmoratum*, cuando no se verifica la existencia de polvo-plúmulus interescapulares (carácter observado por primera vez por Zotta), han sido las causas de muchas identificaciones erróneas.
- 5. Las siguientes subespecies de Tigrisoma se encuentran en la Argentina: T. lineatum marmoratum (Vieillot), en todas las regiones bajas del norte, con ambientes favorables, y hacia el sur, ocasionalmente hasta Mendoza y Buenos Aires. T. fasciatum fasciatum (Such), conocida en la Argentina solamente por dos ejemplares coleccionados en Bonpland (Misiones) en la misma fecha; también se encuentra en el sur (especialmente el sudeste) de Brasil. T. fasciatum pallescens Olrog, conocida solamente en el noroeste de la Argentina, en Salta y Tucumán, pero probablemente de distribución más amplia. Los ejemplares de la Argentina mencionados en la literatura, como T. salmoni brevirostre Sztolcman, se consideran pertenecientes a fasciatum (los de Misiones) y pallescens (los de Salta); brevirostre se considera sinónimo de T. f. salmoni Sclater & Salvin, que se encuentra desde Costa Rica y Panamá, y por las regiones montañosas del oeste de América del Sur, desde Venezuela y Colombia hasta Bolivia. "T. bolivianum (Lönnberg)", citada en Corrientes, es solamente una variación rara, con corona negra, de T. l. marmoratum, con la cual concuerda además en varios otros caracteres morfológicos y de coloración.

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