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Taxonomy and Nomenclature
of the Bronzed Cowbird

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The Bronzed or Red-eyed Cowbird, currently called *Tangavius aeneus*, has had a checkered nomenclatorial history, at the generic, specific, and subspecific levels. In connection with the preparation of the manuscript for the family Icteridae for the Peters Check-list by the junior author, we have had occasion to look into both the taxonomy and the nomenclature of this species.

The first edition of the A.O.U. Check-list (1886) and earlier literature placed *aeneus* in the genus *Molothrus*. In the appendix to his Manual of North American Birds (1st ed., 1887, p. 589; 2nd ed., 1896, p. 600), Ridgway proposed that two "species" (now considered subspecies) of cowbirds, *aeneus* Wagler and *robustus* Cabanis, be separated from *Molothrus*. As generic characters he gave "feathers of hind-part and sides of neck in the adult male much elongated, forming a very conspicuous, soft, dense and erectile ruff; four outer primaries with inner webs curiously sinuated and emarginated, the web being expanded just beyond the middle portion, the posterior extremity of the widened part forming an acute point, projected longitudinally (less marked on the first quill)." For this newly separated genus Ridgway revived the name *Callothrus* Cassin (1866), originally proposed as a subgenus of *Molothrus* to include *aeneus* (with which Cassin synonymized *robustus*) and *armenti* Cabanis. The first of

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these two species was later designated as the type of *Callothrus* by Sclater (1884, p. 3).

The segregation of the Bronzed Cowbird into a genus separate from *Molothrus* was adopted in the second edition of the A.O.U. Check-list (1895), and has been universally accepted in the subsequent literature. Only the number of species to be included in such a genus and the names to be used for the included forms, as well as for the genus itself, have varied.

Ridgway's concept of the genus *Callothrus* in his "Manual" included *aeneus* as a west Mexican species, and *robustus* as a species found from Texas to Panama. By 1902, when part II of "Birds of North and Middle America" appeared he had added (without having seen) the South American *armenti* as a third species, and recognized two subspecies of *aeneus*, as Nelson, in the interim, had described *Callothrus aeneus assimilis* as the form of southwestern Mexico. Shortly afterward, Nelson (1905, p. 125) rediscovered the name *Tangavius involucratus* Lesson, 1839, and showed that the type specimen probably came from eastern Mexico. The generic name *Tangavius* was therefore substituted for *Callothrus* of later date, and *involucratus* replaced *robustus* as the name for the form ranging from Texas through eastern Mexico to Panama. Nelson, in the same paper (1905, p. 126), showed that intergradation in the vicinity of the Isthmus of Tehuantepec made it necessary to consider the three Mexican forms as conspecific. The third edition of the A.O.U. Checklist (1910) thus listed *Tangavius aeneus aeneus* (as the western form had, since Ridgway wrote, invaded Arizona) and *Tangavius aeneus involucratus* as the two forms found within its geographic scope.

Friedmann (1927, 1929) was the first modern student to survey the cowbirds over their entire geographic range, and he had the benefit of field experience with many of the forms. He admitted the same forms of *Tangavius* as had Nelson in 1905; i.e., two species, *armenti* and *aeneus*, the latter with three races, *aeneus*, *involucratus* and *assimilis*. At the generic level, Friedmann was then something of a "splitter," preferring to recognize nomenclatorially certain natural divisions among the cowbirds. Thus he not only continued to admit both *Tangavius* and *Molothrus*, but coined a subgenus *Streptitovagus* for *M. rufoaxillaris*, and segregated the non-parasitic cowbirds as a third genus for which he revived the name *Agelaioides* Cassin. Friedmann redefined the genus *Tangavius* as follows: "Cowbirds with the three outer primaries incised on their inner webs; the feathers of

the mantle enlarged to form a distinct ruff in the male; and the plumage of the neck and breast somewhat hair-like."

Up until this point it had apparently not occurred to anyone that the name *aeneus* Wagler, based on specimens collected by Deppe, was almost certainly wrongly applied to the northwestern Mexican race for which it had been used since the initial division of the Bronzed Cowbird into two forms. It remained for van Rossem (1934, pp. 354-355) to examine the Deppe specimens at the Zoological Museum in Berlin, and to show that these were of the eastern Mexican population. Although van Rossem plainly stated that the specimen upon which Wagler based his description of *aeneus* (i.e., the type) came from the City of Mexico, and that a *second* specimen came from "Lagunas" (identified by van Rossem as "Laguna, Vera Cruz," but see below), Hellmayr (1937, p. 52) inexplicably cited the type locality as "Laguna, Vera Cruz." This error has been perpetuated in the most recent edition of the A.O.U. Check-list (1957), and in the Mexican Check-list (Miller *et al.*, 1957).

Stresemann (1954) published a highly useful paper on the collector Ferdinand Deppe, giving his itinerary, and listing the type specimens, collected by Deppe, of species described by various nineteenth century ornithologists. In this paper he established the identity of Deppe's "Lagunas" as Laguna Huetulacan, Veracruz. However, he lists a specimen from Oaxaca, Oaxaca, as the "lectotype" of *Psarocolius aeneus* Wagler, and mentions no specimen of this species from Mexico City. Professor Stresemann has been kind enough to re-examine the Deppe specimens in the Berlin Museum on our behalf to clear up this discrepancy. He writes as follows (letter of 18 August 1964):

"In Lichtenstein's catalogue of about 1852 three specimens are listed under the heading of '*Icterus (Molothrus) aeneus*':

7396 fem.	Oaxaca	Deppe
7397 mas. ad.	Mexico	Deppe
7398	Lagunas	Deppe

"The Oaxaca bird was destroyed in Feb. 1945, while the others are still in best shape. Nr. 7398 is a female ad., collected in 1828 by Deppe and Schiede at Laguna Huetulacan (Est. Veracruz). This specimen had apparently not yet reached Berlin at the time of Wagler's visit in the autumn of 1828. Nr. 7397 is a fine adult male, still bearing Lichtenstein's label: 'I. aeneus Wagl. Mas. Psarocolius aeneus Wagl. Mexico. Deppe.' In Deppe's lists of birds sent to Berlin, the term 'Mexico' means always *Mexico City*. Nr. 7397 has, therefore, to be regarded as the *type* of Wagler's bird. I made a mistake when writing in my 1954 article, 'Oaxaca, October 1825, lectotype' . . ."

The type locality of *Tangavius aeneus aeneus* may thus, thanks to Dr. Stresemann, be firmly established as the City of Mexico.

Having demonstrated that the subspecies in eastern Mexico must bear the name *aeneus* rather than *involucratus*, van Rossem (1934, p. 355) renamed the northwestern race *T. a. milleri* (type locality Tucson, Arizona). The nomenclature thus established by van Rossem was adopted by Hellmayr (1937) and has been universally employed ever since.

To turn from nomenclature to taxonomy, the generic distinctness of the Bronzed Cowbird does not appear to have been questioned since the separation was made by Ridgway. That author himself admitted (1902, p. 206) that "*M. atronitens*" [= *M. bonariensis minimus*] has the inner webs of the three outer primaries with "an angular projection of the margin, much as in the species of *Callothrus*, but much less pronounced, and there seems also to be a slight development of the neck-ruffs of that genus." Ridgway's statement is true of the other races of *M. bonariensis*, which he apparently did not examine, as well as of *minimus*. The primaries of *M. rufoaxillaris* are slightly sinuated in the same area.

Friedmann (1929, p. 319) stated that "in respect to the development of the cape *armenti* is much nearer to *T. aeneus* than to any species of *Molothrus* but is a fairly good intermediate link between the two genera." We have examined the adult male specimen of *armenti* in the American Museum of Natural History, and agree that it seems to bridge in several ways the gap between *Molothrus* and *Tangavius*. Although *aeneus* is a large, stoutly-proportioned cowbird, *armenti*, as Friedmann (*loc. cit.*) points out, "seems to have the weakest bill and feet of all the Cowbirds," and resembles *M. ater* more than *T. aeneus* in these proportions. In addition, the brown color of the head and body of *armenti*, while more iridescent, is not unlike that of the head of male *ater*.

It is true that adult males of *T. aeneus* exhibit a peculiar texture of the breast feathers (described by Friedmann as "somewhat hairlike"). This character appears to vary geographically in its expression within the species *aeneus*, and is definitely less conspicuous in *armenti*. Isolated breast feathers of adult males of *M. bonariensis* also have a decidedly "hairy" aspect, although this textural quality is less conspicuous when the feathers are in place, as they are relatively shorter than those of *aeneus*.

Thus every morphological character by which *Tangavius* and *Molothrus* have traditionally been separated is seen to be bridged by *T. armenti*, by *M. bonariensis*, or both. Recent studies of the behavior of icterids by Selander and others (see especially Selander

1964) have reinforced the earlier findings of Friedmann (1929) that *aeneus* resembles the parasitic members of *Molothrus* in displays and vocalizations far more than does the non-parasitic *badius*, although the latter is currently included in *Molothrus*. Friedmann characterized the genus "*Agelaioides*" as "non-parasitic Cowbirds with short, rounded wings, no sexual plumage dimorphism, and no courtship display." We agree with Hellmayr (1937, p. 68) that the wing shape is not a very good generic character. As for the lack of sexual plumage dimorphism, this is also true of *M. rufoaxillaris*, although the latter might be considered "cock-feathered," while *badius* is "hen-feathered." The differences in reproductive habits, displays and vocalizations between *badius* and the other cowbirds are striking, however, and a much better case could be made for recognizing *Agelaioides* and *Molothrus* rather than *Tangavius* and *Molothrus* if the cowbirds are to be divided into two genera. As emphasized by Hoy and Ottow (1964), however, nestlings of *M. rufoaxillaris* are virtually indistinguishable from those of *M. badius*; the latter species is the chief and probably sole host of the former (Friedmann, 1963, pp. 216-217). Friedmann (1929, p. 45) stated that *rufoaxillaris* "shows in several ways that it is an offshoot from the Bay-wing [*badius*] stock. . . ." Although, as agreed by all authors, *badius* is undoubtedly the most "primitive" of living cowbirds, it seems best to continue to consider it a member of the genus *Molothrus*.

Since the Bronzed Cowbird is shown above to lack *any* unique character, whether morphological or behavioral, which would justify continued recognition of the genus *Tangavius*, we hereby propose to return it to *Molothrus*. The little-known *armenti* (for a summary of its history see Friedmann, 1957) is a geographic representative of *aeneus*. Although its difference in color and proportions suggest that it might be specifically distinct, *armenti* is now considered by Dr. Friedmann to be conspecific with *aeneus*. We propose to follow his recommendation, based in part on observations of a living adult male *armenti* in the National Zoo, and place *armenti* as a subspecies of *aeneus*. Detailed distributional studies in Mexico may yet show that the "gray female" and "black female" types of Bronzed Cowbird are sympatric, in which case it will be necessary to return to the older concept of two species.

Unfortunately, when *Tangavius* becomes a synonym of *Molothrus*, it is necessary once again to rename the Bronzed Cowbird of Arizona and northwestern Mexico, since *Tangavius aeneus milleri* van Rossem, 1934, is preoccupied in *Molothrus* by *Molothrus bonariensis*

milleri Naumburg and Friedmann, 1927, currently considered a synonym of *M. b. bonariensis*. In order to honor van Rossem's intent to name this race of Bronzed Cowbird for his friend and colleague Dr. Loye Holmes Miller, we propose ***Molothrus aeneus loyei***, new name, to replace *milleri* van Rossem.

The Giant Cowbird or Rice Grackle, *Scaphidura oryzivora* (= *Psmocolax oryzivorus* auct.; see Parkes, 1954), is undoubtedly related to the *Molothrus* assemblage, and resembles them in certain of its displays (Harrison, 1963; Selander, 1964). However, *oryzivora* is quite sharply set apart from the molothrine cowbirds in a number of morphological particulars (very much larger size, different proportions, peculiar bill shape, etc.), and appears worthy of continued separation in the monotypic genus *Scaphidura*.

Friedmann (1963, pp. 2, 10, 173, 218) has arranged the cowbirds in a proposed evolutionary sequence based chiefly on type of host preference. Starting with the non-parasitic *badius*, he postulates the first stage as the single-host *rufoaxillaris*. From this stock, one line leads through *bonariensis* to *ater*, the species with the broadest host tolerance. The other line, of more restricted host selection, leads through *oryzivora* to *aeneus* (in which, contrary to his 1957 suggestion, Friedmann includes *armenti*). Friedmann admits that the "evidence" for the latter sequence is almost entirely behavioral, and is merely suggestive. Morphological evidence suggests a somewhat different sequence. The shape of the outer primaries, incipient ruff, and feather texture of males all point toward *bonariensis* as the nearest living relative of the Bronzed Cowbirds. And Friedmann admits that derivation of the Bronzed from the Giant Cowbird does seem highly unlikely in many ways.

The most difficult species to place is the North American *ater*. It is the most host-versatile species, but its plumage is less specialized than that of either *bonariensis* or *aeneus*. Judging from statements in the literature, especially in Friedmann (1929), the habit of associating with grazing ungulates is developed to the greatest extent in *ater* (then, in descending order, *aeneus*, *bonariensis*, *rufoaxillaris* and *badius*; according to Skutch [1954, pp. 316-318], *Scaphidura* resembles *aeneus* in feeding behavior).

That there was a radiation in North America of cowbird-like icterids is strongly suggested by the presence in Quaternary deposits of the extinct genera *Pyelorchamphus* (New Mexico) and *Pandanaris* (California, Florida; see Brodkorb, 1957). Both of these most nearly resemble cowbirds among living icterids, according to their describer,

Alden H. Miller. Significantly, these two are among the very few extinct Quaternary land bird genera listed by Wetmore (1956), other than the large falconiform birds, and they were the only extinct Quaternary passeriform genera known at that time. A few additional extinct Pleistocene passeriform genera have since been described, including one icterid, *Cremaster* (Brodkorb, 1959). The latter resembles living oropendolas and caciques, but Dr. Brodkorb, in conversation, states that he did not compare *Cremaster* with *Scaphidura*. Such a comparison might prove to be of interest, as the ecology deduced from the fauna associated with *Cremaster* does not seem appropriate for an oropendola. At any rate, the deduction seems inescapable that there were cowbird-like birds associated with the extinct Pleistocene herbivore fauna, just as there were numerous large extinct predators and scavengers, both avian and mammalian (see Martin, 1959, p. 403). It is possible that living *Molothrus ater* represents a survivor of this North American radiation (it is known from the Pleistocene of Virginia; see Wetmore, 1962, p. 14), which remained highly adaptable to new hosts, new herbivores, and new geographic areas, as we know it to be today.

Friedmann (1963, p. 218) invoked geographic distribution as part of his argument that *aeneus* may have been derived from *oryzivora*. On the other hand, at least three species of cowbirds (*ater*, *bonariensis*, *aeneus*) have expanded their ranges within historic times, and Friedmann (1957) has himself suggested that the range of *armenti* may have shifted away from the coast of Colombia within the past century. It thus appears somewhat futile to try to reconstruct any distributional history of cowbird evolution based on the present ranges of living species.

For check-list purposes, as is well known, a three-dimensional relationship must be forced into two dimensions. Up to a certain point, a linear arrangement of the cowbirds reflects what seem to be true relationships. As Friedmann has stated, more than one phyletic line is almost certainly involved in the evolution of the living species. If *ater* could be omitted, the sequence would be a rather straightforward one, progressing from lesser to greater development of parasitism, sexual dimorphism, and specialization of plumage. But, as mentioned above, *ater* is in some ways the most advanced in behavior characters while relatively unspecialized in plumage characters. The latter is more likely to be a secondary development, although it is possible that *ater* evolved directly from an unspecialized ancestral molothrine. It seems that the best compromise is to place *ater* at

the end of *Molothrus*, even though the following species, *Scaphidura oryzivora*, has its closest affinities with *aeneus*. The proposed checklist sequence of species of cowbirds, therefore, is as follows:

Molothrus badius
rufoaxillaris
bonariensis
aeneus
ater
Scaphidura oryzivora

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