

LOST IN TRANSLATION: THE TRUE MEANING OF “NATALIS” IN THE NAME OF THE YELLOW BULLHEAD *AMEIURUS NATALIS*



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The Yellow Bullhead *Ameiurus natalis* (Figure 1) is a catfish (Siluriformes: Ictaluridae) native to North American fresh waters from southern Canada and the Great Lakes to the Gulf of Mexico, west into the Great Plains and the Rio Grande, with nonindigenous populations throughout most of the contiguous United States and in the lower Colorado River system of México. The species was introduced to science under the name *Pimelodus natalis* by French naturalist Charles-Alexandre Lesueur in 1819. Since Lesueur did not explain the meaning of *natalis*, American ichthyologist David Starr Jordan attempted to explain the name in several publications, including the seminal four-volume *Fishes of North and Middle America* (1896-1900). Jordan claimed that *natalis* means “having large nates, or buttocks.” Jordan’s explanation has been repeated in many scientific and popular publications ever since. Unfortunately, it is incorrect.

Jordan based his explanation on a misinterpretation of the Middle English *natal*, which, depending on its derivation, can mean two widely different things: buttocks or Christmas. Jordan applied the anatomical version of *natal* to the catfish’s name, apparently unaware that Lesueur included in his description a

French cognate of *Pimelodus natalis* in the form of “Pimelode Noël.” In naming this catfish *natalis*, Lesueur was in fact honoring a French fisheries inspector whose name means Christmas: Simon-Barthélemy-Joseph Noël de La Morinière (1765–1822).

LESUEUR’S ORIGINAL DESCRIPTION

To accurately understand the etymology of any plant or animal binomen, it is essential to consult the publication in which the name was proposed. Since Jordan’s explanation of the meaning of *natalis* involves anatomical characters (nates or buttocks) presumably possessed by the fish, it is instructive to see if those characters are mentioned by the naturalist who coined the name. In the case of *Ameiurus natalis*, the answer is no.

Born in Le Havre, France, Charles-Alexandre Lesueur (or Le Sueur, 1778–1846; Figure 2), was an artist and naturalist who explored the world collecting and illustrating animals new to science. In 1815, he joined Scottish mineralogist William Maclure (1763–1840) on a study tour of the West Indies and the United States. Lesueur settled in Philadelphia in the spring of 1816 and was elected a member of the Academy of Natural Sciences in December of that year. His lithographs for the premier issue of the *Journal of the Academy of Natural Sciences* may be the first lithographs published in America (Peck and Stroud 2012:16).

In the early years of the 19th century, the fishes of North America represented a largely unknown fauna. Knowing that many new species awaited discovery, Lesueur set out to collect, illustrate, and study the fishes of this young and unexplored country. From 1817–1825, he published 19 ichthyological papers, in English, in the Academy’s *Journal*. These papers included the original descriptions of such well-known American fishes as the American Eel *Anguilla rostrata* (1817), Chain Pickerel *Esox niger* (1818) and Sailfin Molly *Poecilia latipinna* (1821), to name but three. His lone non-English paper on fishes during this time was “Notice de quelques poissons découverts dans les lacs du Haut-Canada, durant l’été de 1816” (“Record of some fishes found in lakes of Upper Canada during the summer of 1816”), in the French journal *Mémoires du Muséum d’Histoire Naturelle, Paris*, published in 1819. This paper contains the original description of two catfish species whose names are still valid today: the Brown Bullhead *Pimelodus* (now *Ameiurus*) *nebulosus* and the Yellow Bullhead *Pimelodus* (now *Ameiurus*) *natalis*.¹

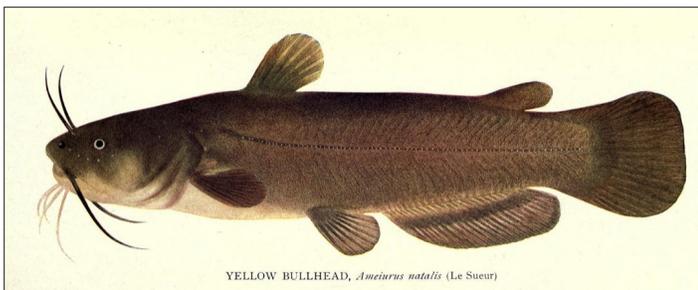


Figure 1. Possibly the first published image of *Ameiurus natalis*. Illustration by Charlotte M. Pinkerton, appearing in Forbes & Richardson’s *Fishes of Illinois* (1908).

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¹ In 1819, *Pimelodus* was a catch-all genus for many non-European catfishes. Proposed by Lacepède in 1803, the name refers to the “fatty” or



Figure 2. Charles Alexandre Lesueur in 1818, oil portrait by Charles Willson Peale. Note the eel (perhaps *Anguilla rostrata*) in the jar.

Lesueur's description of *P. natalis* is poorly done by today's standards and does not appear to provide a truly differentiating character. Not helping matters is the fact that no type specimens survive, preventing one from examining the same fish that Lesueur had before him in 1819. Nevertheless, the name *Pimelodus natalis* became established in the literature, eventually becoming *Amiurus* (correctly *Ameiurus*) *natalis* when Theodore Gill revised the North American catfishes in 1861. Since it is important to note the presence or absence of specific anatomical features in Lesueur's description, it is useful to provide an accurate English translation here:

PIMELODE NOËL. (*P. natalis*.)

Spec[ific] charact[eristics]: An even body, fins tinted dark red, olive-colored and plain [unmarked?] on the back, yellow under the stomach.

This pimelode has an even body from the dorsal to the tail, and can be contained between two parallels. It is as high at the base of the adipose fin and at the end of the anal fin as from the base of the first dorsal, descending to the pectorals; whereas in other fish species, the part next to the tail is always the least high; the form of the fins differs little from the previous species; that of the tail is shortened in a straight line. The anal

is long and rounded; their color is dark red, mixed with a little yellow; the top of the head is a dark green tint, which is lighter on the back, turning yellow on the sides and becoming light yellow on the abdomen. The lateral line is straight and more apparent in this species than in others.

The head is wide and a bit spherical [round]; the teeth have the same distribution as in other species [of *Pimelodus*]. There are eight whiskers. Those of the lower jaw are uneven; the two in the center are the shortest.

This species does not reach a remarkable size; it barely is over 8 French inches.

The remainder of the text under the "PIMELODE NOËL" header comprises a provisional description of another catfish species, which Lesueur informally called "*Pimelodon livrée*." Surgeon-naturalist John Richardson (1787–1865) cited Lesueur's description when he formally named the species *Silurus (Pimelodus) insignis* (now known as the Margined Madtom *Noturus insignis*) in 1836 (p. 132).

As is clearly evident, Lesueur did not mention rumps, nates or buttocks in his description. The inclusion of these body parts in the nomenclatural history of *Ameiurus natalis* began with David Starr Jordan.

NATALIS VS. NATAL: ORIGIN OF AN ETYMOLOGICAL ERROR

David Starr Jordan (1851–1931; Figure 3) was the dominant figure in American ichthyology throughout the 50-year period straddling the 19th and 20th centuries. He and his students and colleagues were responsible for hundreds of taxonomic and regional publications, culminating in the four-volume *Fishes of North and Middle America* (1896–1900), co-authored with frequent collaborator Barton Warren Evermann (1853–1932).

Like many of his contemporaries, Jordan was schooled in Latin. He mentioned studying Latin at a young age in his autobiography *Days of a Man* (1922:I,19), and was one of the first ichthyologists, if not the first, to regularly include fish-name etymologies in his publications. In fact, Jordan tapped his Stanford University colleague, Walter Miller (1864–1949), a linguist and classical scholar, to review and correct the name etymologies in *Fishes of North and Middle America* (I,vii). Despite this pedigree, Jordan misinterpreted or mistranslated Lesueur's use of the word *natalis*, engendering a false etymological explanation that persists to this day.

Natus is a Latin noun meaning birth.² *Natalis* is the adjectival form of that noun (i.e., of or belonging to one's birth) and the root of such modern words as natal, innate and native. *Natalis* can also be a noun, referring to a nativity (now usually called a birthday), an anniversary or a commemorative festival. With the advent and rise of Christianity, *natalis* came to be applied to one birthday and commemorative festival in particular: Dies Natalis Domini (Christi), or Birthday of the Lord (Christ). The ecclesiastical meaning of *natalis* is reflected in the words for Christmas in several languages, including Navidad (Spanish), Natale (Italian), Natal (Portuguese), and Noël (French, variant of *nael*, a doublet³ of *natal*). Beginning in 1887, zo-

adipose fin possessed by many catfishes (*pimele*, fat; *-odes*, having the form of), including *Ameiurus natalis*. Today, *Pimelodus* (with 37 or so species from Central and South America) is the type genus of the neotropical catfish family Pimelodidae. "Pimelode" is the French vernacular cognate of *Pimelodus*.

² Derivations and meanings of *natus* and *nates* and their non-ecclesiastical cognates are from Lewis and Short (1879).

³ A doublet is one of two (or more) words that have the same etymological



Figure 3. David Starr Jordan in 1880, the year the third edition of his *Manual of the Vertebrates of the Northern United States* was published.

ologists have used *natalis* for animals native to Christmas Island, an Australian territory in the Indian Ocean discovered on Christmas Day in 1643: a bat, *Pteropus natalis* Thomas 1887; a crab, *Gecarcoidea natalis* Pocock 1888; a goshawk, *Accipiter fasciatus natalis* (Lister 1889); a swift, *Collocalia natalis* Lister 1889; a dove, *Chalcophaps indica natalis*, Lister 1889; an owl, *Ninox natalis* Lister 1889; a spider, *Ariadna natalis* Pocock 1900; and two fishes, a blenny, *Praealticus natalis* (Regan 1909), and a goby, *Eviota natalis* Allen 2007.⁴

Jordan clearly missed the Christmas connection in Lesueur's use of *natalis*. Whether he had not seen Lesueur's paper (which, since it was published in France, is a possibility) or simply overlooked the reference to "PIMELODE NOËL" (Figure 4) is impossible to say. Confronted with the need to explain the etymology of *na-*

root but establish themselves in a language via different routes.

⁴ Animals named *natalis* but not named after Christmas include the beetle genus *Natalis* Castelnau 1836, named for Puerto Natales, Chile, presumably near type locality of *N. laplacii*; a moth from Sri Lanka, *Amyna natalis* (Walker 1858), etymology not explained nor evident; a fossil synapsid from the Early Permian of Texas, *Dimetrodon natalis* (Cope 1878), allusion not explained but perhaps referring to its primitive (i.e., natal) stage of development in the evolution of reptiles (Creisler 2016); *Slyela natalis* Hartmeyer 1905, a tunicate named to celebrate the 80th birthday of the German zoologist Karl August Möbius (1825–1908); the ichnospecies *Striatichnium natalis* Walter 1982, a swimming arthropod (Permian of Germany), its name derived from the Latin verb *nato*, swim, after the term Natichnia (swimming tracks of invertebrates); and *Nataliconus* Tucker & Tenorio 2009, named for its type species *Conus natalis* Sowerby 1892, a gastropod named for its occurrence in the Natal region of South Africa.

pêche, comme les autres poissons du lac, aux flambeaux. On m'a assuré qu'il parvenoit à une très-grande dimension.

6. PIMELODE NOËL. (*P. natalis*.)

Caract. spéc. Corps égal, nageoires teintes de rouge foncé, couleur olivâtre et unie sur le dos, jaune sous le ventre.

Ce Pimelode a le corps égal depuis la dorsale jusqu'à la queue, et peut être compris entre deux parallèles. Il est aussi haut à la base de la nageoire adipeuse et à la fin de l'anale, que depuis la base de la première dorsale, en descendant derrière les pectorales; tandis que dans les autres

Figure 4. "PIMELODE NOËL"—the clue explaining the true meaning of *natalis* that Jordan never saw or overlooked.

talis, Jordan incorrectly assumed the word was derived not from *natus*, meaning birth, but from the Latin *nates*, meaning rump or buttock. Jordan also erred in not noticing that the correct adjectival form of *nates* is *natal* (referring to or having a rump) rather than *natalis*. The anatomical application of *natal* in zoology is rare but not without precedent. Natal callosities, also called ischial callosities, are the thickened areas of skin on the buttocks of many primates, particularly baboons and macaques (Miller 1945). Jordan, however, trained as a physician with an M.D. from Indiana Medical College, may have had the natal cleft in mind when he attempted to explain *natalis*. In humans, the natal cleft is the groove between the buttocks that runs from just below the sacrum to the perineum. It is colloquially called the "butt crack."

Jordan first wrote about *Ameiurus natalis* in 1877 in the second part of a series of papers called "Contributions to North American Ichthyology." He divided the species into six geographic subspecies: *natalis* (Great Lakes to North Carolina and south), *lividus* (Ohio Valley to Arkansas, North Carolina and south), *coenosus* (Maine to Great Lakes and northward), *cupreus* (Ohio Valley, Mississippi Valley and south), *antoniensis* (Georgia to Texas), and *analus* (Arkansas River).⁵ While Jordan did not explain the meaning of *natalis* nor specifically mention nates or buttocks, he was intrigued that Lesueur described a fish in which the caudal peduncle ("the part next to the tail") is not tapered ("always the least high") as it is in most other fishes. "The description of *Pimelodus natalis* Le Sueur," Jordan wrote, "appears to have been based on an individual with the caudal peduncle swollen and elevated" (p. 88).⁶ Jordan then described what he termed the "*natalis*" form of *Ameiurus* catfishes, characterized by a "shortened and thickened" post-dorsal region and an "enlarged" adipose fin. "Whether these peculiar forms are distinct races or aberrant individuals," Jordan continued, "or stages in the life of an individual, or what they are, I have not now sufficient evidence to enable me to decide" (p. 88).

Fishes do not have rumps or buttocks, at least not in the way humans do. But if one were to define the terms as "fleshy parts on the back side of an animal," then one could construe that the caudal

⁵ Despite meaning "anal," the subspecies *analus* was not named for nates or buttocks but for its "extremely long" anal fin.

⁶ The qualifier "appears to have been" is important to note. Jordan is merely guessing that Lesueur's specimen has a swollen caudal peduncle since the specimen no longer exists and no illustration of it was made.

peduncle or adipose fin of Lesueur's *Pimelodus natalis* corresponds to the gluteal muscles of primates (including humans), especially if one believes that *natalis* means rump or buttocks, as Jordan clearly did. In 1878, in the glossary of the second edition of Jordan's *Manual of the Vertebrate Animals of the United States*, *natalis* is defined as "with a projecting rump" (p. 384). In the fifth edition of the *Manual* (1888), Jordan deleted the glossary but added to the main text brief translations of the scientific names of all included fishes. His translation of *natalis* is given as "Lat., having large nates, i.e. adipose fin" (p. 40). This definition is repeated in all subsequent editions (12 in all, ending in 1916). Here Jordan unambiguously states that the fish's nates or buttocks refer to its adipose fin.

Curiously, Jordan deleted mention of the adipose fin in connection with the etymology of the fish's name in his most famous and important work, *Fishes of North and Middle America*. Here he (and Evermann) simply state: "*natalis*, having large nates or buttocks" (I,139). Jordan reprised the subspecific divisions he proposed in 1877, this time adding anatomical details that future ichthyologists (see below) may have used in their attempts to explain the buttocks reference. *A. n. natalis* is described as having a "sometimes extremely obese body" whose posterior half is "thickened and shortened," whereas *A. n. antoniensis* has a "more or less swollen and elevated" nape (as in neck, not to be confused with nate). None of these subspecies are considered valid today (Gilbert 1998).

THE LEGACY OF JORDAN'S ERROR

Jordan's *Manual of the Vertebrate Animals of the United States* passed into obscurity. *Fishes of North and Middle America* did not. The work became the standard reference for 20th-century ichthyologists studying North American fishes. Its magnitude, scholarship, and utility seemed impossible to surpass. According to Jordan's student and successor Carl L. Hubbs (1964:57), young ichthyologists were advised to study fishes from other lands because North America was done! It was, for many years, definitive. If "Jordan and Evermann" (as the work came to be called) said *natalis* refers to "large nates or buttocks," then the fish must unquestionably have large nates or buttocks.

"Jordan and Evermann" became a handy and authoritative source of taxonomic data for the many "Fishes of ..." books and monographs⁷ that began appearing in the 20th century. Many of these publications repeated the "nates and buttocks" claim verbatim or nearly so: *Fishes of North Carolina*, "having large buttock" (Smith 1907:67); *Freshwater Fishes of Canada*, "having large nates or buttocks" (Scott and Crossman 1973:598); *Fishes of Kentucky*, "L *natis* rump or buttock; an allusion to the large nates or buttock" (Clay 1975:201); *Fishes of Missouri*, "having large buttocks" (Pflieger 1975:211); *Fishes of the Minnesota Region*, "having large buttocks (Latin)" (Phillips et al. 1982:177); *Fishes of Wisconsin*, "having large nates, or buttocks" (Becker 1983:708); *Inland Fishes of New York State*, "having large nates or buttocks" (Smith 1985:81); *Fishes of Utah: a Natural History*, "having large nates or buttocks" (Sigler and Sigler 1987:153); *Reproductive Biology and Early Life History of Fishes in the Ohio River Drainage*, "having

large buttocks" (Simon and Wallus 2004:78); *Fishes of Vermont*, "with nates or buttocks" (Langdon et al. 2006:233).

Some authors apparently struggled with the "large buttocks" explanation, adding their own interpretations to account for the fact that a fish does not have buttocks. In *Inland Fishes of California* (1976:241), Moyle claims that "large buttocks" refers to the "obese specimens originally described by Lesueur in 1819" (even though Lesueur described only one specimen and did not call it fat or obese; that descriptor apparently came from Jordan (see above). Tomelleri and Eberle make the same claim in *Fishes of the Central United States* (1990:119). One publication, *The Great Minnesota Fish Book*, appears to take its lead from Jordan's mention of *A. n. analis*, the nominal subspecies with the long anal fin, claiming that "large buttocks" is a reference to the species' long anal fin, said to be the longest of the three bullhead catfishes (including *A. nebulosus* and *A. melas*) in the Midwest (Dickson 2008:65).

The most common contemporary explanation for "large buttocks" appears to mirror Jordan's description of a "more or less swollen and elevated" nape on the nominal subspecies *A. n. antoniensis*. However, modern authors have added a detail not mentioned by Lesueur or Jordan, namely that the swollen nape is seen only on adult or breeding males. According to *Fishes of Tennessee*, *natalis* means "with large buttocks, perhaps in reference to the large nuchal humps of mature males" (Etnier and Starnes 1994:302). *Freshwater Fishes of Virginia* posits that *natalis* "probably alluded to the swollen and medially furrowed dorsal head and nape muscles of breeding males" (Jenkins and Burkhead 1994:47). Nearly identical claims are put forth in *Fishes of Alabama and the Mobile Basin* (Mettee et al. 1996:383), *Inland Fishes of Mississippi* (Ross 2001:330), *Fishes of Alabama* (Boschung and Mayden 2004:330), *Fishes of the Middle Savannah River Basin* (Marcy et al. 2005:217), *Freshwater Fishes of South Carolina* (Rohde et al. 2009:224), *Freshwater Fishes of Ontario* (Holm et al. 2010:258), and this author's own "Annotated Checklist of North American Freshwater Fishes" (Scharpf 2006:14).⁸

Interestingly, none of the accounts cited above repeat Jordan's 1888 statement that "large nates" refers to the adipose fin of *Ameiurus natalis*. This suggests that the authors of these accounts did not look beyond *Fishes of North and Middle America* for the etymology of the name. Regrettably, the ichthyological legacy of Jordan and Evermann's great work includes the acceptance and perpetuation of an etymological explanation that simply is not correct.

NOËL DE LA MORINIÈRE: THE TRUE MEANING OF "NATALIS"

Lesueur did not state why he selected *natalis* as the name for one of the catfishes he described in 1819. He did, however, provide a significant clue by including the vernacular epithet "PIMELODE NOËL." With this French transliteration of the fish's Latin moniker (*natalis* = Noël), Lesueur unambiguously indicated that the name means Christmas or is in some way related to Christmas. But why

⁷ Many websites have repeated the "nates or buttocks" explanation as well, including FishBase, Planet Catfish, and the University of Michigan's ADW (Animal Diversity Web) database. The Wikipedia entry for *Ameiurus natalis* repeats the claim as well, but adds a footnote that the claim is "dubious" (last accessed 6 April 2020).

⁸ Despite repeated references to swollen napes of adult or breeding male *Ameiurus natalis*, independent verification of such a claim is hard to find. Two references come close. Forbes and Richardson (1908) describe "fleshy prominences covered with thick and loose skin on either side of a median groove through occipital region to base of dorsal" (p. 185). Jenkins and Burkhead (1994) report "Two males from June and July had pronounced swellings of dorsal head and nape musculature" (p. 545).

Christmas? Did Lesueur collect the fish on Christmas Day? No; the title of Lesueur's paper in which the description appeared says it was collected during the summer of 1816. Was he referring to its "tinted dark red" fins and "dark green tint" on the top of the head, red and green being colors traditionally associated with Christmas? Possibly but probably not; the fish's red-and-green tints (as described by Lesueur) seem too drab to be compared to the festive red-and-green colors of a holiday wreath with berries.⁹ The most likely explanation of *natalis*, one in which all the pieces fit together, is that Lesueur honored a contemporary whose name means Christmas in French: Simon-Barthélemy-Joseph Noël de La Morinière (1765–1822).

Little known in America today, Noël de La Morinière (hereinafter Noël) was a polymath of some note in his native France during the Bourbon Restoration. A resident of Rouen, a port city on the River Seine and capital of the region of Normandy, he studied law, edited a newspaper, and wrote on a wide variety of subjects (e.g., economic and political conditions in Latin America), but his primary interests were the natural history, culture and economic value of aquatic life, particularly fishes. Noël published natural histories of smelt and her-

⁹ While the upper body of *Ameiurus natalis* can be described as olive or greenish (and the lower body yellowish to white, hence the common name Yellow Bullhead), neither Jordan & Evermann nor any of the contemporary accounts cited herein describe its fins as red. The most frequently mentioned colors, when mentioned at all, are various combinations of dusky, light to dark gray, and dark brown.

ring, a history of whaling, and works on the geography, river navigation, and fisheries of the Seine-Inférieure (now Seine-Maritime) department in Normandy. In 1813, he sent a letter to Thomas Jefferson (1743–1826), former third President of the United States (1801–1809) and then-President of the American Philosophical Society, asking for "specific information about the twelve principal species of useful fish that can be found in the rivers of the United States, considered from the point of view of their usefulness to society" (translation from Looney 2008:603). Noël included with his letter the prospectus of a projected six-volume history of fisheries. Jefferson likely never received the letter and Noël never finished the series; despite working on it for 20 years, only a single volume appeared (1815). In 1806, Noël became inspector general of marine fisheries of France, a position he held until his 1822 death in Trondheim, Norway, where he was assessing fishing resources of the North Sea.

Although Noël's publication plans did not come to fruition, he shared his manuscripts and illustrations with the French naturalist Bernard-Germain-Étienne de La Ville-sur-Ilion, comte de [count of] Lapepède (1756–1825), author of *Histoire Naturelle des Poissons* (1798–1803). He also shared specimens of fishes he thought were new to science or unusual in some way. Noël is cited or mentioned no less than 65 times in Lapepède's five-volume work, usually in reference to *in situ* observations of habitat, distribution, abundance, and migratory behavior. In volume three, Lapepède showed his appreciation by naming a new species of carangid fish after Noël, *Scomberoides noelii* (now considered a *nomen dubium* or *species inquirenda*), as a "solemn mark of gratitude and esteem" to a man "who very much deserves the everyday thanks of naturalists for his labors, and whose precise observations have enriched so many pages of the [natural] history that we write" (translated from Lapepède 1801:III,51).

Clearly, Noël was well known in French ichthyological circles by the time Lesueur described *Pimelodus natalis* in 1819. But what inspired Lesueur to name an American catfish after a fisheries inspector in France? Unfortunately, there is not enough evidence (at least available in the United States) to answer that question. In his 1817 description of the American Eel *Anguilla rostrata*, Lesueur mentioned that "Mr. Noel of Paris has informed me that a German naturalist, who had travelled in North America, published some years ago, in Europe, an account of some fishes of the United States" (pp. 82–83). More telling is an entry about Lesueur in an 1818 French reference work, *Biographie des Hommes Vivants* (*Biography of Living Men*). According to the entry, one of Lesueur's objectives in studying the fishes of North America was to provide Noël with living specimens that might be suitable for the freshwater rivers of Europe. Lesueur proposed sending fishes of an "amphibious nature" (translation) supposing they would be better suited to surviving the trip from Delaware to Paris and Le Havre (a major port city where the Seine meets the English Channel). Lesueur, the entry concludes, "believes that these species, endowed, moreover, with great fertility, would multiply preferentially in muddy rivers, such as the Somme, the Marne, and the Charente" (translated from Michaud 1818: IV,214). One other piece of evidence suggests a more personal relationship between the two men. In a 6 December 1818 letter to his friend, the zoologist Anselme Gaëtan Desmarest (1784–1838), written in Philadelphia, Lesueur explained that he explores, collects, and gives lessons in sketching to "some very pleasant young ladies" on Wednesdays and Saturdays. "I use Fridays and Sundays," Lesueur continued, "which are my free

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days, writing my friends” (quoted in Hamy 1904:41; English translation in Haber: 1968:30). According to Lesueur’s biographer E.-T. Hamy, these friends included Noël de La Morinière.

Unless there is a treasure-trove of uncatalogued letters and manuscripts in France waiting to be mined, little more is known about the Noël-Lesueur connection.¹⁰ We can surmise that Lesueur admired Noël or was indebted to him in some way. But the precise reason why he honored Noël must remain a mystery, at least for now. Why Lesueur chose to disguise the patronym by selecting *natalis* instead of the more explicit *noelii* must also remain a mystery. Perhaps Noël was so well known in France that readers of *Mémoires du Muséum d’Histoire Naturelle, Paris* would have understood and appreciated the indirect reference behind the name.

THE VALUE OF AN ACCURATE ETYMOLOGY

Knowing the correct derivation and meaning of any plant or animal name adds to our knowledge of the taxon, the intention of its author(s), and the historical setting in which it was described. Likewise, an incorrect explanation detracts from that knowledge. Considering how multiple generations of ichthyologists have unquestioningly accepted and perpetuated Jordan’s claim that *natalis* refers to nates or buttocks, it’s more than a bad translation, it’s bad science and bad history as well.

One can imagine that Charles-Alexandre Lesueur took pleasure in naming a fish in honor of Noël de La Morinière. After 200-plus years of obscurity, mistranslation, and misinformation, we can take a similar pleasure in knowing that Noël is finally getting the etymological recognition he deserves.

ACKNOWLEDGMENTS

Susan Binkley provided the English translation of Lesueur’s original description. Ben Creisler, an expert on the derivations of dinosaur names, independently uncovered the Noël-Lesueur connection while teasing out the etymology of *Dimetrodon natalis*; his findings greatly enhanced this study.

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¹⁰ Two other possible Noël-Lesueur connections: From 1801 to 1803, Lesueur and François Péron were companions on a French expedition to New Holland (Australia). Péron was writing the second volume of his report on the expedition when he succumbed to tuberculosis in 1810. On his death bed, he bequeathed his manuscript to Lesueur to revise, correct, and complete. Lesueur was not available, and so Lesueur’s father, Jean-Baptiste-Denis Lesueur, asked Noël (among others) to complete the task. Noël recused himself (Hamy 1904:5) or “disclaimed competence” (Haber 1968:3) In 1813, Lesueur sketched the seashore between Le Havre (Lesueur’s hometown) and Sainte-Adresse (Vincent 2013:35), along the English Channel in the Seine-Maritime department of the Normandy region of France, and during Noël’s tenure as marine fisheries inspector in that region; whether Noël commissioned or knew about the sketches is not clear.

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SNORKELING THE HIDDEN RIVERS OF SOUTHERN APPALACHIA

A Photographic Snorkel Guide to Sites, Species & Gear

CASPER COX

Site 1 Fishes of the Conasauga River

Bronze Darters are the most common darter in the Smokey Hills. I consider them handsome with their many pronouncements of bronze. From shiny brass to muted patinas, they wear their metallic scales proudly. The Latin name for the Bronze Darter is *Percina flaviventris*, which means "The Prince." They seem to enjoy feeding in the carpet-like moss covering the rocks. Rubbing your hand gently over their river-worn gently dislodges micro edibles that these handsome darters will promptly feed upon.

Greenbreast Darters are at their most beautiful in the early spring. During the spawning season the males are out and about parading themselves to entice the more bland colored, gravid females. (Being those filled with eggs), into their selected nesting sites. Usually this species tends to live and hide beneath the stones located in or

Speckled Darters, during the spring spawning season, only the males get the vertical bars of iridescent blue. During most of the year their bodies are a light tan color blending into the sandy substrate they favor, generally found in the calmer flowing areas.

There are many, many other species of fish found in the Conasauga River. Typically on any given day you will see 20 to 30 different fish species at the snorkel hole, and even more as you learn when and where to look. Snorkel the pools and bouldered rapids further downstream and return during other seasons to see new sights. Explore! Below is one of the beautiful crayfish, marked with vermilion over soft

LOOK BELOW THE SURFACE

CHEROKEE NATIONAL FOREST

NANFA's very own Snorkelmeister, Casper Cox, has written a snorkeling guide that is both useful (with maps and information about locations, access, biodiversity, identification, safety and more) and beautiful (with dozens of color photos by some of the best underwater photographers in the world). Written to complement the Freshwaters Illustrated film "Hidden Rivers," the book is a distillation of Casper's interests, experiences and skills, as well as a love letter to his favorite waters and their inhabitants.

75+ pages, lay-flat spiral binding, 3rd printing. \$30 each

NANFA receives a donation for each copy sold through <http://www.nanfa.org/cart.shtml#guide>



Hellbenders, aka Devil Dogs or Snot Otters, are also found in the Hiwassee River. The clean water, large flat stones and an abundance of crayfish provides an excellent watery world for them to live in. If you were to spend a day here you may well see one, especially in the early dawn or dusk hours as they are generally nocturnal hunters. They breathe through the folds of skin running down their sides and remain in the water year round. Some people are afraid of them but you have nothing to fear. They are not venomous as some unknowing people claim. Consider yourself very fortunate to see a Hellbender in one of the few remaining rivers they still thrive in. They are North America's largest salamander reaching lengths of 24 inches or more.

David Herasimtschuk was honored with an international first place award in London for this stunning photo. By the way, the Northern Water Snake got away, a bit too much for this Devil Dog.

to a stream named Spring Creek located on the north side of the farm compared to the cold Hiwassee. Though the creek is much milder runs for easy snorkeling. In early spring River Clubs with and here, just as in the shallower runs of the Hiwassee.

Hiwassee River Map & Directions

The Hiwassee River is only 30 minutes from the Conasauga River, via US Highway 41 (north). A convenient location is the Hiwassee Picnic Site and it's just a few miles from 411, along TN 30 east toward Reliance. The picnic site offers tables, an access ramp, a restroom and a shallow grill bar to waste out from. Be careful here as the water can dramatically and dangerously rise during power generation surges. While in Reliance, visit the historic Webb Brothers general store and post office. On the other side of the river, at the bridge, is a fly fishing store and deli as well. Free camping is available along Spring Creek and paid camping with facilities at Gee Creek Campground. A visitor center is nearby.

1 The Hiwassee River Picnic Site.

Looking Below the Surface

Snorkeling a wonderful way to experience another aspect of our world. Not only will you see things that most never will, it is a full sensory experience. Your body and senses are fully interested, you are sooper one with the watery world, floating freely in its space. Your vision is magnified by an optical enhancement making everything appear larger. Aquatic creatures will come near you, as curious of you as you of them, soon accepting your presence. Unlike on the surface world, where one generally has to view creatures from afar or by the use of binoculars, in the world below the water's surface you can gently approach many aquatic species within feet and even inches for a prolonged period of close observation.

Aquatic Diversity

Fishes come in all types of shapes and sizes with their bodies adorned by marked patterns, gold, reds, blues, greens and colorful flowing fins. Fishes vary from long, slender gar jarralling the 40-belowwaters to little unassuming fish darting during the gravelled bottom. Schools of silver shiners by you, shimmering in the sunlight's rays while in Redeye Bass watches, lurking in the shadows of logs lay. A new world of aquatic life awaits, below your feet from the Earth's surface. Eased the flow and listen for the sounds of redhorse suction popping microscopic meals from the flat slabs of broken bedrock. In the cracks and crevices tiny translucent eggs, filled with new life, another generation of foraging fishes taking their place in the aquatic food web. Schools of one-stonegrazers graze on slippery stones covered with algae, shaving off patches with their hovering, sharp as our fingernails. They are feeding, moving as a herd of aquatic cattle, grazing on the alga. Return in the spring and some of these sleek stone grazers will have merged into armor-plated rolling stones and jacking deep trenches into the clean gravel for the egg-filled females. About her eggs, dominant males will fertilize and protect the eggs with a cover of newly rolled stones.

This is a world mostly unseen, yet eager to be witnessed by you. With a mask of tempered glass face free, released from gravity's pull, drifting through their watery world with a quiet ease. No anchors, floating in the void of space, but no, you are here in a medium of living water, and so acquainted, exploring new mysteries.

Shiners and Sunfish, Trout and Redfishes, Darters and Dace, Bullheads and Hog Suckers, Dr. Pleurocentrus Bass and their prey, Lampreys and Minnows, Whittaker Catfish, along with their