

XXXVIII.—*On Fishes new to Ireland*. By WILLIAM THOMPSON, Esq., Vice-President of the Natural History Society of Belfast.

IN the course of a communication which I had the honour of bringing before the Zoological Society of London, on the 13th of June, 1837, were a number of fishes new to Ireland, but which, being known as British species, were introduced in little more than a catalogue form, and so published in the Proceedings of the Society. As the species are chiefly rare, the following notes respecting them are brought together, in the hope that they may prove acceptable for this publication.

TRIGLA CUCULUS, Bloch\*. *T. BLOCHII*, Yarr., Red Gurnard.—Of this gurnard, two small specimens, taken at Youghal, county Cork, early in the summer of 1835, have, along with many other fishes from the same locality, been kindly submitted to my examination by Robert Ball, Esq., of Dublin.

They are respectively 3 and  $3\frac{1}{2}$  inches in length. The number of rays in their fins are

D. 8—19; P. 10, and 3; V.  $1\frac{1}{5}$ ; A. 18 (and 19);

C. 10 (and 11).

A black spot is conspicuous from 3rd to 5th ray of 1st D. fin. P. fins extending so far as to be on a line with the origin of A. fin†. Dorsal spines, 27. Lateral line strongly serrated. "Whole body rough" (as described by Montagu, Wern. Mem., v. ii. p. 459) in consequence of spinous scales. Other characters as given by Cuvier and Valenciennes, Hist. des Pois. t. iv. p. 68, 69: in this work the relative length of the 1st and 2nd rays of the 1st D. fin is not mentioned‡, nor is it in

\* The *T. Cuculus*, Bl., appears inadvertently in Mr. Templeton's catalogue of 'Irish Vertebrate Animals' (Mag. Nat. Hist., N.S., vol. i. p. 409), the species meant being the *T. pini*, Bl.

† These are generally described as not reaching so far as the vent, but their superior length in the present instance is probably consequent on the specimens being so young, as in several other genera of fishes I have remarked the P. fins in very young individuals to be much longer proportionally than they are in adult specimens.

‡ Notwithstanding the trouble taken by Cuv. and Val. in clearing up the synonyma of the *Trigla*, and which has been so ably done, there is still a little confusion in one point respecting this species. At p. 70 it is remarked that Risso has well described it; yet, on a comparison instituted between the



the descriptions of Bloch, Montagu, Fleming, or Jenyns. Mr. Yarrell not having a specimen for examination, states on the authority of Risso "that the first spinous ray of the first dorsal fin is the longest" (Brit. Fish. v. i. p. 51), and so figures it; but in both the specimens under consideration, the 2nd ray of that fin is longest, thus corresponding in this important character with Pennant's figure of the species. See Red Gurnard in Brit. Zool., v. iii. pl. 57. ed. 1776, and pl. 66. ed. 1812.

In the Magazine of Natural History for September 1836 (p. 463) Mr. Couch has given "a description of the characteristics of a kind of *Trigla*, hitherto confounded with *T. Blochii*." As it is from the description only of this species that the opinion of Mr. Couch was formed, it may be stated, as affording additional evidence of the correctness of his views, that after a critical comparison of the specimens under consideration with his description, I am satisfied—although the great disparity in size between the English and Irish specimens may be considered insufficient to warrant such a conclusion—that they are distinct.

The more prominent differences are—in the form of the snout; in the body of my specimens being very much rougher than that of *T. Hirundo*, with which Mr. Couch's fish agrees in this respect; in their lateral line being strongly and acutely serrated, although in the individual described by this gentleman, it "is but faintly though distinctly roughened."

Finally, it may be observed, with reference to this last fish being "hitherto confounded with *T. Blochii*," that the examination of my specimens convinces me that the *T. Cuculus* of Bloch, Cuvier, Pennant\*, Montagu, Fleming and Jenyns re-

*T. Cuculus* and *T. Gurnardus*, there is nothing said of a difference in the length of the rays of the 1st D. fin. The "exactitude" of Pennant is at the same time acknowledged, although he represents the 2nd ray of this fin to be the longest, as Risso does the 1st. From this I should infer that Risso's character of "*radiis pinna dorsali anteriore longissimus*" has been overlooked. And besides, Bloch's figure of the *T. Cuculus*, exhibiting the 1st and 2nd rays of this fin of equal length, is criticised by Cuv. and Val., and no remark made upon this discrepancy. Neither in Bloch's description is it stated that this species differs from other *Triglae* in the relative length of these fin-rays.

\* Between the figures and descriptions of Bloch and Pennant there is some disparity; the latter author describes two spines on each side of the snout, the former four, which number my specimens possess. Bloch describes the lateral line as consisting of "*écailles épaisses, larges*," &c., which mine exhibit; whilst Pennant observes that "the side-line [is] nearly



presents but one species; that Mr. Yarrell's *T. Blochii*, excepting what is borrowed from Risso, is also identical, and, judging from Mr. Couch's description, that his *Trigla* is a different species.

MUGIL CHELO, Cuv., Thick-lipped Gray Mullet.—On endeavouring, in the spring of 1835, to identify the common mullet of Ireland with Cuvier's species in the 'Règne Animal,' I perceived its agreement with the few characters there attributed to *M. Chelo*, but before recording it as this species, awaited a comparison with a more detailed description. This has since been afforded me in the 'Histoire des Poissons' of the same illustrious author; and, together with the accompanying figure illustrative of the head of *M. Chelo*, confirms, beyond a doubt, the identity of the species.

In the justly valued works of Yarrell\* and Jenyns†, Mr. Couch is mentioned as the only naturalist who has noticed the appearance of the *M. Chelo* on the British coast; but in a review of the 'British Fishes' in the Magazine of Zoology and Botany, it is remarked, "The thick-lipped grey mullet, reckoned so rare by Mr. Yarrell, as to have been seen only once by Mr. Couch, is the common species on the eastern shores of Scotland, where we believe his grey mullet is not known at all, or is at least far from common. At the mouths of rivers the former is taken in considerable numbers in autumn." Vol. i. p. 390. Every mullet that I have had the means of examining at Belfast, since first giving attention to them in March 1835, was of this species, as were likewise the only two individuals that I have seen from the southern coast of Ireland. These are in the collection of Mr. R. Ball, of Dublin, and were taken at Youghal in the county of Cork.

As information on the history of this species, at least as distinguished from others, is very scanty in all the British and continental works I have had the opportunity of consulting, I have thought proper to enter into the following detail.

Notwithstanding the great increase of shipping of late years at Belfast, the mullet is as plentiful in the bay as it was ever known to be by the few persons engaged in its capture. By smooth." Bloch again describes the caudal fin as forked, and figures it very much so; Pennant states that it is "almost even at the end," which it is in the individuals under consideration.

\* History of British Fishes. † Manual of British Vertebrate Animals.



much the greater number are taken here in trammel or set-nets, but at low water the sweep or draught-net is used in the gullets\*, and also, in addition to the former kind, is employed in fishing for them within the flow of the tide in the river Lagan. They are generally sought for from about the middle of March until the beginning of October, and are occasionally taken before and after these periods. They probably never migrate far, as in two different years, in the month of January, dead individuals were washed ashore in the bay. The fishers are, for their own sake, entirely guided by the weather, which must be moderate, it being by night that the mullet is taken in the greatest numbers, as, by reason of the darkness, they cannot by leaping over it so well avoid the fatal net, though even then they occasionally so escape. In clear moonlight, and by day, fish of every size often clear the net, sometimes springing five and six feet over it, and when one has set the example nearly all are sure to follow it: having surmounted the meshy barrier, they sometimes take two or three additional leaps, and skim the surface beautifully before again subsiding beneath it. In the stillness of the night, it is said, that by leaping and plunging about, they make the water seem quite alive. In the bright sunny days of summer, which they evidently much enjoy, a whole shoal of mullet occasionally exhibit their dorsal fins above the surface of the water, and when there are neither nets nor other objects to obstruct them, may, in playfulness, be seen springing a few feet into the air. This generally occurs at high-water, when they appear to be more intent on roving about than feeding, and penetrate as far up the river as the tidal wave will bear them: at such times they have frequently been captured in May's dock, within the town of Belfast.

Of their time of spawning I cannot speak with certainty, nor have any individuals that came under my observation from March till September been in the least degree spent by it, all being firm and well-formed fish. When, on the 3rd of Janu-

\* These are narrow and often deep channels of water intersecting the banks over which the tide flows. In using the draught-net here, the smaller fish in leaping over it sometimes alight on the banks—at this time dry—to their destruction.



ary, 1835, in search of marine productions outside the entrance to Strangford Lough, county Down, and accompanied by Mr. Hyndman, a specimen of this mullet, under 2 inches in length, was captured, and in the middle of September I have seen others of 9 inches in length.

They are chiefly found in the most oozy parts of the bay, and where the grass-wrack (*Zostera marina*) is abundant. In search of food they make considerable excavations, which the fishers distinguish by the name of mullet-holes\*. The very few Basse (*Labrax Lupus*, Cuv.) taken in Belfast bay—seldom more than a single individual at a time—are generally captured along with *M. Chelo*, and are hence called “white mullet” and “king of the mullet”; the largest known to me as occurring within the last few years weighed 8 lbs.

The species of fish frequenting the coasts of Down and Antrim may be stated, in general terms, commonly to attain the extreme size with their kindred in the Mediterranean, and the *M. Chelo* proves not an exception, as specimens taken in Belfast bay have considerably exceeded in this respect any of those I find recorded to have been obtained in more southern seas†. The ordinary weight is from  $2\frac{1}{2}$  to 5 lbs.; the largest procured by the respective mullet-fishers (all intelligent men of other occupations, and who pursue this chiefly as a pastime) have varied from 8 to  $12\frac{1}{2}$  lbs. The heaviest of which I have heard, was taken in the day-time, by my relative, Richard Langtry, Esq., and, being accurately weighed, proved to be  $14\frac{3}{4}$  lbs.: this gentleman has likewise captured several of 9 and one of 10 lbs. weight.

I shall here condense a series of observations made on this species at Belfast during the last three years. It will be seen that it is not obtained in any great quantity. On the 25th of March, 1835, about sixty individuals taken in the bay, and the first this season, were brought to market, where nearly all

\* Pennant observes, that the grey mullet “keep rooting like hogs in the sand or mud, leaving their traces in form of large round holes.” Brit. Zool., vol. iii. p. 437, ed. 1812.

† Risso states that they attain the weight of 8 lbs. Cuv. and Val., judging from the size of the head, as represented in a collection of Spanish engravings, consider that the *M. Chelo* may attain two feet in length, t. xi. p. 51.



of them were alive when I saw them, though none had been less than three hours out of the water; they were from 16 to 20 inches in length. On the 27th and 28th larger fish were captured; several of equal length—2 feet—that I had weighed, were  $5\frac{1}{2}$ , 6,  $6\frac{1}{2}$ , 7 and 8 lbs., thus showing that the weight is rather a consequence of depth than length: all were equally firm and solid. About the 1st of May this year the greatest number occurred; in one net 7 cwt. were procured at a single draught, and on the same night about 9 cwt. by another boat. They were sold at 4*d.* per pound to the fish-vendors in the market, and retailed at 6*d.*; at these rates they have been throughout the season. The best fish brought in by the one boat weighed 7 lbs., by the other 11lbs. 12 oz., being the largest example obtained this year.

In 1836 the first mullet were taken on the 18th of March. The greatest quantity obtained any night during this year was on the 11th of April, when 2 cwt. was procured by one boat, and at the same time upwards of  $2\frac{1}{2}$  cwt. by another. On the 13th of May many fine fish were taken; one which I weighed was  $8\frac{1}{2}$  lbs., and several more, judging from appearance, were not less; these were about 2 feet long, and some individuals, apparently not heavier, were somewhat above this length. On the 12th of August a quantity was taken. On September the 13th I saw a few specimens about 9 inches long, on the 16th many of ordinary size, and on the 22nd several about a foot in length. With reference to the small fish, it must be remarked, that individuals of herring-size form part of the shoals in spring, but in the set-nets used at that period none under 2 lbs. are “meshed.” The smaller ones are all taken in draught nets, employed at a later period of the year. The largest fish obtained this season weighed  $12\frac{1}{2}$  lbs. They were sold regularly at the same prices, wholesale and retail, as in 1835.

Towards the end of July, 1837, I on different occasions saw specimens about a foot in length, which were taken in the river Lagan, and with them, young herrings (*C. Harengus*), from 4 to 5 inches long, were captured. The greatest quantity of mullet secured this year at one draught was ninety-two fish, weighing 3 cwt.: they were obtained on the 10th of August.



Until the 22nd of September mullet were brought to market, and on this occasion in large quantity. The best fish of 1837 was about 10 lbs. weight. During these three years the largest captures were all made about Garmoyle, a deep portion of the bay, about three miles from town. This fish is sought for only with nets. An acquaintance out eel-spearing in the bay once struck and secured with his spear a mullet of 5 lbs. weight, as it was swimming on the surface of the water.

With reference to European mullets generally, it is remarked in the Hist. des Pois. of Cuv. and Val.: "Les anciens, qui donnaient à tout une couleur poétique, ont en conséquence fait du muge le plus innocent, le plus juste des poissons; tout au plus mangerait-il ceux qu'il trouverait morts," t. xi. p. 77. Mr. Couch, apparently from his own observation, says of the *M. Capito*, "it is indeed the only fish of which I am able to express my belief that it usually selects for food nothing that has life." Yarr. Brit. Fish. vol. i. p. 204. With the *M. Chelo* it is however far otherwise, as the contents of the stomachs I have examined at various seasons, presented, from the minute size of the objects, many hundred-fold greater destruction of animal life than I have ever witnessed on a similar inspection of the food of any bird or fish. From a single stomach I have obtained what would fill a large-sized breakfast cup of the following species of bivalve and univalve mollusca (which had been taken alive)—*Mytilus edulis*, *Modiola Papuana* (of these very small individuals), *Kellia rubra*, *Skenea depressa*, *Littorina retusa*, *Rissoa labiosa* and *R. parva*, *Serpulæ* and *Miliolæ*. Of these mollusca, specimens of *Rissoa labiosa*, three lines in length, were the largest, and the *Kellia rubra*, from the smallest size to its maximum of little more than a line diameter, the most abundant. In the profusion of specimens it affords, the stomach of one of these mullets is quite a storehouse to a conchologist. In addition to these were various species of minute crustacea. The only inanimate matter that appeared, were fragments of *Zostera marina* and *Confervæ*, which were probably taken into the stomach on account of the adhering mollusca. To this nutritious food may perhaps be attributed the great size this fish attains in Belfast Bay.

In the 'Règne Animal' (t. ii. p. 232, 2nd ed.) Pennant's



figure of the grey mullet in his British Zoology is referred to as *M. Capito*, but in the 'Hist. des Pois.' of Cuv. and Val. (t. xi. p. 66.) it is believed to represent *M. Chelo*. In this last work Donovan's figure of the mullet (Brit. Fish. pl. 15.) is considered a very good representation of *M. Chelo*. With this opinion I fully coincide, although Yarrell and Jenyns refer to both figures as *M. Capito*\*. The descriptions of Pennant and Donovan throw no light upon the subject, nor are we informed whence the specimens were obtained that served for their illustrations. Pennant's figure exhibits the longitudinal lines reaching about as far as they generally do in *M. Chelo*; but Donovan, on the other hand, portrays them as extending to the ventral profile: in the more important characters however of the form of the operculum and mouth, his figure represents this species. I may add, that its greater than ordinary depth, which induced Mr. Yarrell to remark that the proportions of Donovan's grey mullet approach "more closely to those of *M. curtus* than to those of the common grey mullet of this country" (Brit. Fish. vol. i. p. 211,) seems not to me, from the great diversity of depth in different individuals, to militate against its being the *M. Chelo*.

The following is a description of a specimen examined on the 21st of July. Total length, 22 inches; greatest depth,  $5\frac{1}{4}$  in.; thickness,  $3\frac{1}{4}$  in.; weight, 5 lbs. D. 4— $\frac{1}{8}$ ; A.  $2\frac{2}{9}$ ; P. 17; V.  $1\frac{1}{5}$ ; C. 14.—Br. 6. In *form* it well agrees with the detailed description of Cuv. and Val., t. xi. p. 51, *et seq.*† The *colour* of the back is, as there described, of a fine steel blue; thence it becomes gradually lighter towards the under surface, which is pure opake white, glossed with silver; a blackish line extends throughout the centre of the first ten rows of scales, ending with the row beneath the base of the P. fin, and giving to the fish its lineated appearance. Entire top of the head and upper lip greyish black; sides of the head just behind the eyes deep gold colour; lower part of the head or base of the opercula pure white; irides purplish black; outer base of P. fin,

\* Mr. Yarrell has taken it for granted that the Irish mullet is of this species, vol. i. p. 202.

† The scales *generally* agree in every particular with the description at p. 52, but *some* do not either in proportion or sculpture.



and the body above and below it, tinged with gold, remainder of the P., the D., C., and A. fins greyish black, the last becoming lighter posteriorly. V. fins white, tinged with very pale flesh colour.

This specimen accords with the description extracted by Mr. Yarrell from the 'Fauna Italica,' with one exception—"the rays of the spiny D. fin [are there stated to be] longer than half the depth of the body." Vol. i. p. 208. In this individual they are only  $\frac{1}{3}$  of its depth. In another specimen 20 inches long, the 1st and 2nd D. rays are equal, and  $1\frac{3}{4}$  inch long, the depth of the fish being about 5 inches. In an individual of 11 inches the 2nd D. ray is equal to one-half the depth, and in one of 10 inches is as 1 to  $2\frac{1}{3}$ . Owing to this species varying very considerably in depth, as elsewhere shown, this must necessarily be a very uncertain character.

From the statistical surveys of counties and other sources, we learn that mullet are taken in suitable localities around the whole coast of Ireland; but whether they be all of one species remains a question for future investigation.

**GobiUS GRACILIS**, Jenyns, Slender Goby.—Upon examination of eighteen specimens—seven from the coast of Down, six from Louth, and five from Cork—of the *Gobius* which until lately has been considered *G. minutus*, I found one individual from Down and another from Louth to be the *G. gracilis* of Mr. Jenyns, (p. 387.) These specimens are distinguished from those of the *G. minutus* by having the "rays of the 2nd dorsal longer; these rays also gradually *increasing* in length instead of *decreasing*, the posterior ones being the longest in the fin;" and by having the "rays of the anal in like manner longer than in the *G. minutus*;" also in "the anal and ventral fins, which are dusky, approaching to black in some places, instead of plain white, as in the *G. minutus*." In addition to this difference in the colour of the fins, my specimens of *G. gracilis* have more black on the body generally than those of *G. minutus*, being so different in this respect as to have attracted my attention when they were first obtained.

**CRENILABRUS RUPESTRIS**, Selby, Jago's Goldsinny.—See Zoological Proceedings for 1837, p. 57, and Magazine of Zoology and Botany, vol. ii. p. 445.



*SALMO ERIOX*, Linn., Bull Trout.—Dec. 3, 1836. In Belfast market I selected from a basket filled with sea trout (*S. Trutta*), in high condition, three specimens of *S. Eriox*, which were taken along with them in the sea at Donaghadee in the county of Down. Their length is from  $19\frac{1}{2}$  to 21 inches; weight of each about  $2\frac{3}{4}$  lbs. Two are males, having the lower jaw very slightly hooked\*, the other is a female; the operculum differs much in the sexes; teeth on the vomer of one male and the female three in number, in the other male four; teeth generally much smaller in the female than in the males. Fin-rays with one or two exceptions are in the three specimens—D. 14, P. 14, V. 10, A. 11, C. 19.

In *colour* they are silvery grey, having but few spots (of the form  $\times \times \times$  and purplish black) above the lateral line and scarcely any below it. Donovan's Sewen (pl. 91.), with which they are evidently identical, is a very characteristic figure. These specimens differ only from it in having fewer spots below the lateral line—but in this particular they accord not with each other—and in the darkness of the blue he represents, being relieved or lightened by a silvery cast†. The tail of the sewen cannot be called incorrect from being forked, as when unexpanded it appears slightly so in the present specimens, although when fully spread out it is square. The female exhibits over the body and operculum, &c. as many more spots as the males—on her operculum are six round spots, on that of the males two or three. Fins of the female coloured as in the sewen, but in the males all darker; V. and A. dull pink or flesh colour in the female; in the males the V. grey for two thirds posteriorly, the A. entirely dark grey; their other fins merely of a darker shade than those of the female. Irides silvery.

The ova in the female are very minute, being not more than half the size of clover seed; the milt in the males occupies twice its space. These latter not having any of the red markings said to distinguish the adult male, and the hook of the

\* In the 'Fauna Boreali Americana' it is remarked, that "the hook of the under jaw is very decided, even in a young *Salmo Cambricus*," (Part 3. p. 307,) but in the present instance the reverse appears.

† This observation is perhaps superfluous, as different copies of the work may not invariably exhibit the same shade of colours.



lower jaw being so slightly developed, taken in connection with the internal appearance of both sexes, lead to the conclusion that they would not have bred for another year. In the stomach of one was a sand eel (*Ammodytes Lancea*) three inches long, and in another a large piece of the marine plant (*Ceramium rubrum*).

**GADUS CALLARIAS**, Linn. Dorse.—An examination of the fishes before mentioned as taken on the coast of Cork and forwarded for my inspection by Mr. R. Ball, enables me to restore this species with certainty to the place it once held in the British Fauna. Two small specimens thus received are in length respectively  $3\frac{1}{2}$  and 6 inches; in the latter the number of fin rays are D. 14, 18, 18; A. 20, 17; P. 18; V. 6; C. 24.—Br. 7. In both individuals the 1st and 2nd rays of the ventral fin are produced in slender filaments, of which the second is the longer; eyes invested with a membrane as in *G. luscus*, &c.; head to entire length as 1 to 3 in the larger, as 1 to  $3\frac{1}{2}$  in the smaller specimen; no pores visible about the mouth as in *G. minutus*. In other characters these individuals agree with the *G. Callarias* as described by Bloch and Nilsson. They were taken in sprat nets at Youghal in the autumn of 1834, when a third specimen also occurred.

Subsequently I had the satisfaction of recognising a *G. Callarias* among some native fishes presented by Mr. Wm. Marshall (Memb. Nat. Hist. Society) to the Belfast Museum without regard to species. Upon inquiry, I learned from this gentleman that it had been captured by himself when fishing in the month of June or July about the entrance to Larne Lough, county of Antrim, and using the lug worm (*Lumbricus marinus*) for bait. Its length is 8 inches. We thus find that the species occurs both on the northern and southern shores of Ireland.

**GADUS MINUTUS**, Linn. Poor.—Amongst some fishes taken in a trawl net by Mr. Hyndman in Belfast Bay in the month of September 1835, and kindly preserved for me, are three individuals of this species, which as British has hitherto been known only to the southern coast of England. These specimens are under four inches in length; their fin rays about the number described by Mr. Jenyns, but it may be observed that



in the 1st and 2nd D. fins the second ray is longest, in the 3rd D. fin, the third, fourth, and fifth rays are longest, and of about equal length: in the 1st A. fin the rays gradually increase in length posteriorly to the seventh, which, with the eighth and ninth, are of about equal length. Tail slightly forked, just as represented in both editions of Pennant's British Zoology.

Feb. 19, 1836. In Belfast market I obtained a *G. minutus* which was taken along with a quantity of atherines (*A. Presbyter*) in Strangford Lough. Its length is six inches; the exact number of fin-rays are, D. 13, 24, 20; A. 27, 22; P. 14; V. 6; C. 20 (with many side rays).

Lateral line curved anteriorly for very nearly half its length, remainder straight. Colour just as described by Bloch; above the lateral line pale yellowish brown, marked with extremely minute black dots, below it silvery minutely dotted with black, which latter marking prevails in the pectoral and anal fins; irides silvery; tinged with black above.

In the same jar with the last-mentioned *Gadus Callarias* were three specimens of *G. minutus*, which I learned from Mr. Marshall were taken at the same time and place with it, and with the same bait. The largest is  $8\frac{3}{4}$  inches long, diameter of its eye  $8\frac{1}{2}$  lines. Jan. 12, 1838. I received a *G. minutus* 8 inches in length from Killough, on the coast of Down. Among fishes from Youghal, submitted to my examination by Mr. R. Ball, in July 1837, were two individuals of this species, one  $8\frac{3}{4}$  the other  $10\frac{1}{2}$  inches in length.

The figures of *G. Callarias* and *G. minutus* in Mr. Yarrell's 'British Fishes' are very characteristic; the curve of the lateral line, however, approaches the tail more nearly in my specimens of the latter than is represented in the figure—in all of them about one half of this line is curved.

[To be continued.]

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XXXIX.—On the RHIZOPHOREÆ. By G. A. WALKER  
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THE genus *Rhizophora*, as left by Linnæus and adopted by De Candolle, ought to be rather considered a group of the





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