

BUFF-BREASTED MERGANSER, OR GOOSANDER.

† *MERGUS MERGANSER*, *Linn.*

PLATE CCCCXI.—MALE AND FEMALE.

This species may be said to be a constant resident with us, as many individuals breed in the interior of the states of New York, Massachusetts, and Maine. When I first resided in Kentucky, some bred there also, although at the present day none pass the summer in that country. In the latter part of autumn, in winter, and in early spring, they are found in all parts of the Union; in Texas I procured some in April, 1837, and in the beginning of May saw a considerable flock in Galveston Bay. How much farther southward their migrations extend I know not, but from having observed them coming from that direction, I suspect that they advance pretty far into the interior of Mexico, from which some perhaps cross to the Arkansas river, on which I have also seen them. On the Mississippi, the Ohio, and their tributaries, Goosanders are found during the coldest weather; and when the larger streams are covered with ice, they betake themselves to such smaller creeks as have very rapid currents or cascades, about which they feed. But there are parts of our southern coast, where they are exceedingly rare, such as South Carolina, where my friend Dr. BACHMAN has never seen one, and the Floridas, in which none occurred to me during my rambles there. Indeed one is surprised to find that among birds like this, which is so hardy as to remain in our North-eastern States during the severest part of the winter, some should extend their movements at the same season as far to the south-west as Texas; but facts like these are beyond our philosophy. In the lower parts of Louisiana, this species is called the "Bec-scie-de-mer," probably because there it is found only on the large salt-water lakes, and about the mouths of the Mississippi, and to distinguish it from the Hooded Merganser, which there is more usually seen on fresh water. I have been assured by Professor MACCULLOCH of Pictou that it now and then breeds in Nova Scotia. Yet I found none in Labrador or Newfoundland, where the Red-breasted species was breeding in great numbers. Dr. RICHARDSON found it in abundance in the Fur Countries.

The Goosander is a vigorous and robust bird. It swims deeply, but with considerable speed, even against a strong current, running waters being

generally preferred by it, even when rather shallow, provided their beds are of sand or pebbles, for it is rarely seen on muddy or stagnant waters, even during the breeding season, when it returns to the inland lakes. Like the Grebes it has the power of sinking backwards, and it dives expertly, remaining occasionally several minutes beneath the surface. It usually swims and dives against the current, and close by the shores, extricating itself from floating ice by passing under it. Its voracity is great, so that it consumes an extraordinary quantity of fish. I have found fishes in its stomach seven inches in length, and of smaller kinds so many as to weigh more than half a pound. Digestion takes place with great rapidity, insomuch that some which I have fed in captivity devoured more than two dozen of fishes about four inches in length, four times daily, and yet always seemed to be desirous of more. The alleged awkwardness of this bird when on shore is a fable, for I have seen individuals while courting in spring run with great celerity fifty or more yards at a time, keeping nearly in an erect position. On occasions of this kind I have observed on the sand-bars of the Mississippi flocks of seven or eight males chasing each other with great animosity. At other times, however, they are not fond of walking much, but when on shore are generally seen lying flat on the ground. At times the Mergansers rise almost at once on wing from the water, but at others they seem to find considerable difficulty, patting it with their feet for many yards. These differences seem to depend on various circumstances, such as their being suddenly surprised, or during violent winds. They generally, if not always, rise on wing against the breeze.

The flight of the Goosander is powerful, and as rapid and sustained as that of the Red-breasted and Hooded Mergansers. When fairly under way and at a good height, they advance in an almost direct course and proceed with surprising velocity, so that, when suddenly apprised of the vicinity of man, they at times find it difficult to check their speed so quickly as may be necessary for their safety. I well remember that on several occasions having watched one of these birds flying directly up a creek and towards me, I have taken aim at it and fired when it was at the proper distance, and yet such had been its velocity that it would advance, after being shot, many yards towards me. When rising from the water, whatever number may be in the flock, they all start together, paddle off with their feet and wings, stretching out their necks, and thus run as it were on the water to the distance of twenty or thirty yards with great velocity, extending in a front, or following each other in a line, according to the extent of the space before them. They then gradually ascend to the height of the trees, and move off to some considerable distance, but often return to the same place. They seem to ascertain the fertility of the waters by sipping a little on their

alighting, and then, having found appearances favourable, they open their bills, apparently to take a deep inspiration, and immediately dive. When they have procured a sufficiency of food, they betake themselves to some sand-bar, on which they repose until it is digested.

The Goosander rises to the surface with the fish in its bill, and, shifting it about until it is in a proper position, swallows it head foremost, then dives for more. So deeply does it swim, that on such occasions not more than a third of its body is seen on the surface; and there is very little chance of shooting it, for it dives on seeing the flash, or even on hearing the click of the lock. The only chance of procuring one at such times is when, on coming to the surface, it stretches itself up and beats its wings. If it is only wounded, it often exhibits great tenacity of life, and diving at once remains a long time in the water. On emerging, it is seen shaking its head violently, for the purpose of disgorging its food, and, perhaps, the blood that has flowed into its lungs; and, on effecting this, it again plunges headlong. At length, you see it come to the surface, with its beautifully tinged breast upwards; but if your object be to obtain game, you will have little satisfaction in procuring a Goosander or any of its genus, for they are all fishy, oily, tough, and fitted for the palate of none but experienced epicures. The food of the Goosander consists chiefly of fish, but also of bivalve shells, snails, leeches, aquatic lizards, crays, and frogs.

Now, good reader, spring has once more gladdened the face of nature, pearly drops hang on every leaf, glistening in the bright sunshine, and thousands of gay insects flutter around. My light canoe is ready. Leap in, seat yourself snugly in the bow, and sit still while I paddle you to the green islands of this beautiful lake, where we shall probably find a Merganser or two, perhaps a female sitting on her eggs. As to the dog, we need him not; so lie thee down, Baron, until I return. I was always fond of "paddling my own canoe," and I never met with a single accident so long as I managed it myself; but on more occasions than one I have been turned out as gently as one turns himself in bed, and having put the frail bark to rights, have assisted the awkward fellow who had caused the disaster, dived for his gun and my own, and conducted him to the camp to dry his garments. Therefore, be quiet, and fear nothing. How smooth and silvery are the pure waters, how beautiful those tall trees! The dogwood is in full bloom, so are the maples, whose rich red blossoms cluster on the twigs. Here we are just entering the rushes of this little island. Get out, and wade to the shore with all possible gentleness; or allow me to do so; for to lighten our slight bark, one of us must get into the water. Softly we advance as I pull the canoe by the bow; but now, squat, for here are tracks of the Goosander. There now lies the female close before us. She thinks we have not seen her, for

she crouches closer upon her eggs. Alarm her not, or she will soon depart. There she croaks, and scrambling off through the tall grass, flies off on rapid wings. Look at the nest! count the eggs if you choose, but allow me, if you please, to describe them.

The islands on which the Goosander is wont to breed are mostly small, as if selected for the purpose of allowing the sitting bird to get soon to the water in case of danger. The nest is very large, at times raised seven or eight inches on the top of a bed of all the dead weeds which the bird can gather in the neighbourhood. Properly speaking, the real nest, however, is not larger than that of the Dusky Duck, and is rather neatly formed externally of fibrous roots, and lined round the edges with the down of the bird. The interior is about seven and a half inches in diameter, and four inches in depth. There are seldom more than seven or eight eggs, which measure two inches and seven-eighths in length, by two inches in breadth, are of an elliptical form, being nearly equally rounded at both ends, smooth, and of a uniform dull cream-colour. The young are led to the water in a few hours after they are hatched, and are covered with fur-like hair, of a reddish-brown colour about the head and neck, the body lightish grey. They are excellent divers, and run on the surface with surprising velocity; but they are not able to fly for nearly two months, when, being fat, they are easily fatigued if closely pursued, and on such occasions will often betake themselves to the shore, lie down, and even allow you to lay hold of them. My friend THOMAS NUTTALL has given an interesting account of his chase of a brood of Goosanders.

“Early in the month of May, 1832, while descending the Susquehanna near to Dunstown, a few miles below the gorge of the Alleghanies, through which that river meanders near the foot of the Bald Eagle Mountain, G. LYMAN, Esq. and myself observed, near the head of a little bushy island, some Wild Duck, as we thought, with her brood making off round a point which closed the view. On rowing to the spot, the wily parent had still continued her retreat, and we gave chase to the party, which with all the exertions that could be made in rowing, still kept at a respectful distance before us. We now perceived that these diminutive possessors of their natal island were a female Goosander or Dun Diver, with a small but active little brood of eight young ones. On pushing the chase for near half an hour, the young, becoming somewhat fatigued, drew around their natural protector, who now and then bore them along crowding on her back. At length, stealing nearly from our sight, as the chase relaxed, the mother landed at a distance on the gravelly shore, which being nearly of her own grey colour and that of her family, served for some time, as a complete concealment. When approached again, however, they took to the water, and after a second

attempt, in which the young strove to escape by repeated divings, we succeeded in cutting off the retreat of one of the family, which was at length taken from behind a flat boat under which it had finally retreated to hide. We now examined the little stranger, and found it to be a young Merganser of this species, not bigger than the egg of a Goose, and yet already a most elegant epitome of its female parent, generally grey, with the rufous head and neck, and the rudiments of a growing crest. After suffering itself to be examined with great calmness, and without any apparent fear, we restored it to its more natural element, and, at the first effort, this little diminutive of its species flew under the water like an arrow, and coming out to the surface only at considerable distances, we soon lost sight of it, making good its aquatic retreat in quest of the parent. On inquiry, we learned from the tavern-keeper, that for several years past a nest or brood of these birds had annually been seen near this solitary and secluded island."

The male Goosanders leave the females immediately after incubation has commenced, and are then seen in the wildest parts of the country. Several females are often found breeding on the same island, and it is after their young are pretty well grown, that they moult. For a number of years past, I have sometimes entertained a hope, at the approach of the breeding season, of finding a male Goosander having his head adorned with a broad erectile crest, like that of the female and young, but I have hitherto been disappointed, and am therefore unable to say whether such a crest ever exists in that sex. The young of both sexes retain the colouring of the female for two years, during which time the males can be distinguished from the females only by their being much larger. The males have not the rich buffy tint on the breast until about two years after they have commenced breeding, and the first perceptible change by which their sex is distinguished is the appearance of black feathers on the head and neck. Until of late years, the females were thought to be of a distinct species, to which the name of Dun Diver was given.

Many writers have said that this bird breeds in the hollows of trees, or on their branches; but of the various nests which I have found, not one occurred in such situations; and the Hooded Merganser is the only species of this genus which I have observed nestling in an elevated place.

The notes of the Goosander are harsh, consisting of hoarse croaks, seldom uttered unless the bird be suddenly startled, or when courting. The females are usually silent, but when with their young brood, and pursued, they emit the same guttural sounds as the males. Goosanders are easily caught with hooks baited with fish; my friend JOHN BACHMAN has procured them in this manner on the Hudson river, and I also have on the Ohio.

Along with the representation of a pair of adult birds of this species, I have given a correct view of the Cohoes Falls, in the State of New York.

GOOSANDER, *Mergus Merganser*, Wils. Amer. Orn., vol. viii. p. 68.

MERGUS MERGANSER, Bonap. Syn., p. 397.

MERGUS MERGANSER, *Goosander*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 461.

GOOSANDER, *Mergus Merganser*, Nutt. Man., vol. ii. p. 460.

GOOSANDER, *Mergus Merganser*, Aud. Orn. Biog., vol. iv. p. 261.

Male, 27, 36. Female, 24, 34.

In winter dispersed over the United States, and westward as far as Texas. Breeds from Massachusetts northward, and along the Great Lakes.

Adult Male.

Bill about the length of the head, straight, strong, tapering, higher than broad at the base, nearly cylindrical toward the end. Upper mandible with the dorsal outline sloping gently to the middle, then straight, along the unguis suddenly decurved; the ridge broad at the base, then convex; the sides sloping rapidly at the base, convex toward the end; the edges serrated beneath; the unguis oblong, much curved, abruptly rounded at the end. Nasal groove elongated; nostrils submedial, linear, direct, pervious. Lower mandible with the angle very narrow, and extended to the unguis, which is obovate; the sides nearly erect in their outer half, with a long narrow groove, the edges serrate within.

Head rather large, compressed, oblong. Neck rather short, thick. Body full, depressed. Feet placed far behind, short, stout; tibia bare for about a quarter of an inch; tarsus very short, compressed, anteriorly covered with small scutella, and another row on the lower half externally, the sides reticulate. Hind toe very small, with an inferior free membrane; anterior toes half as long again as the tarsus; second shorter than fourth, which is almost as long as the third, all connected by reticulated webs, which are deeply concave; the outer toe slightly margined, the inner with a broad marginal membrane. Claws rather small, moderately arched, compressed, acute, that of the middle toe with a thin inner edge.

Plumage moderately full, dense, soft, glossy. Feathers of the head and neck silky, blended, elongated along the median line, so as to form a not conspicuous crest; of the back rather compact; of the lower parts blended. Wings short, of moderate breadth, convex, acute; primaries narrow, tapering, the first scarcely shorter than the second, the rest rapidly graduated; secondaries rather short, narrow, rounded, the inner elongated and tapering. Tail short, much rounded, of eighteen rather narrow rounded feathers.

Bill bright vermilion, with the unguis black. Iris carmine. Feet orange-red in winter, bright vermilion in the breeding season. Head and upper

half of neck greenish-black, splendid, with bright green reflections; hind part of the neck below white; fore part of neck and all the under parts of a delicate reddish-buff; the sides of the rump and part of the abdomen greyish-white, finely undulated and dotted with dark grey; some of the lower wing-coverts dusky, the larger coverts and primaries light grey. The fore part of the back, and the inner scapulars, glossy black; the hind part ash-grey, becoming lighter and finally undulated on the rump. Upper tail-coverts and tail-feathers deep grey, outer scapulars white; a transverse band of black at the base of the wing, concealed by the scapulars. Wing-coverts white; alula, primary coverts, primary quills, and a band formed by the base of the first row of large coverts, black; secondaries white, six of them margined externally with a black line, the innermost margined on both webs, but more broadly on the inner, and with the tip black.

Length to end of tail 27 inches, to end of claws $26\frac{1}{2}$, to end of wings 24, to carpal joint $13\frac{5}{8}$, to end of green on the neck $7\frac{1}{4}$; extent of wings 36; bill along the ridge $2\frac{8}{12}$, along the edge of lower mandible $3\frac{1}{2}$; wing from flexure $11\frac{1}{4}$; tail 5; tarsus $1\frac{10\frac{1}{2}}{12}$; first toe and claw $\frac{10}{12}$; outer toe $2\frac{7\frac{1}{2}}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; middle toe $2\frac{8}{12}$, its claw $\frac{5}{12}$. Weight 5 lbs. Of another $3\frac{3}{4}$ lbs.

Dimensions of two other Males:

Length to end of tail,	.	.	26	$25\frac{7}{8}$ inches.
..... claws,	.	.	27	25
..... wings,	.	.	24	$23\frac{1}{2}$
Extent of wings,	.	.	38	35

Female.

The female is much smaller. The bill, eyes, and feet are coloured as in the male, but the ridge of the bill is black, and the nail whitish; the longitudinal crest is much more elongated, being composed of linear feathers, some of them fully two inches and a half long. Head and upper part of neck brownish-red; throat white; all the upper parts, with the sides of the body and rump deep ash-grey, the feathers paler at the margin. Smaller wing-coverts and inner secondaries grey; bases and tips of secondary coverts black, the intermediate part white; middle secondaries white, outer and primaries black; anterior part of neck below faintly banded with ash-grey; breast and abdomen white, slightly tinged with buff.

Length to end of tail 24 inches, to end of claws $23\frac{1}{2}$, to end of wings $20\frac{3}{4}$; extent of wings 34; bill along the ridge $1\frac{11}{12}$, along the edge of lower mandible $2\frac{1}{2}$; wing from flexure $10\frac{1}{4}$; tail $4\frac{1}{2}$; tarsus $1\frac{9}{12}$; hind toe and claw $\frac{2\frac{1}{2}}{12}$; middle toe $2\frac{4}{12}$, its claw $\frac{5}{12}$; outer toe $2\frac{4}{12}$, its claw $\frac{4}{12}$.

The young males after the autumnal moult, and until the middle of summer, resemble the females.

An adult male obtained near Boston examined. The heart is 2 inches

long; the lobes of the liver are nearly equal, the right being 3 inches 7 twelfths long, the left 3 inches 3 twelfths.

The upper mandible has about 28 recurved conical, acute, horny papillæ, and an internal series of smaller, on each side; the tip of the unguis serrulate; on the lower mandible are about 40 of the same nature. The tongue is 2 inches 1 twelfth long, fleshy, emarginate, and papillate at the base, tapering, with a double row of slender reversed papillæ along the upper surface, and two lateral series of filaments on each side; the tip lacerated, horny on the back. Posterior nasal aperture oblong, 10 twelfths in length, papillate on the edges. Aperture of the glottis $4\frac{1}{2}$ twelfths long. The mouth is 10 twelfths in breadth, but may be extended to 1 inch 9 twelfths. The œsophagus is $10\frac{1}{2}$ inches long, its diameter 1 inch 7 twelfths on the neck, contracting to 8 twelfths as it enters the thorax, but again expanding; the external coat of transverse muscular fibres very thick; the internal layer of longitudinal fibres very distinct; the mucous coat thrown into prominent longitudinal plaits when contracted; the mucous follicles disposed in longitudinal single series. The proventriculus is 2 inches long, the glandules very numerous, oblong, about 2 twelfths in length, forming a complete belt. The stomach is a strong gizzard, of moderate size, 2 inches long, the lateral muscles 5 twelfths thick; the epithelium very thick, nearly 1 twelfth, longitudinally rugous. In the stomach and gullet was a fish 9 inches long, the portions lying in the stomach and proventriculus partially dissolved, the rest 4 inches long, not acted upon; there were also two fragments of quartz, one of them a quarter of an inch long. The intestine is long, measuring 6 feet 3 inches, its diameter from 5 to 3 twelfths. The cœca are 3 inches long, for half an inch $1\frac{1}{2}$ twelfths in diameter, in the rest of their extent 4 twelfths. The rectum 5 inches long, including the cloaca, which has a diameter of an inch and a quarter.

The trachea, $10\frac{1}{2}$ inches long, has at first a diameter of 4 twelfths, dilates gradually to 8 twelfths, then contracts to 4 twelfths, enlarges a second time to 7 twelfths, and gradually contracts to 3 twelfths. In this space the rings, 146, are strong, broad, and osseous. At its lower part is an enormous dilatation composed of numerous united rings, bulging irregularly on the right side and behind, and on the left expanded into a case having two large spaces filled by membrane; the greatest diameter of this tympanum is 2 inches and 2 twelfths. The bronchi come off at the distance of nearly an inch from each other, and are short, but wide, with about 25 half-rings. The lateral or contractor muscles are very strong, give off a pair of cleido-tracheals from the second enlargement, and at the commencement of the labyrinth the sterno-tracheals, which are also very large; but there are no other inferior laryngeal muscles.

The intestine of a male in the first winter is 6 feet 8 inches long, its greatest diameter half an inch, wider towards the rectum than at the upper part, where the diameter is 4 twelfths. Rectum $4\frac{1}{2}$ inches long, exclusive of the cloaca. Cæca $2\frac{1}{4}$ inches. Contents of stomach, remains of fishes and a great quantity of quartz fragments.

An adult female. Œsophagus $10\frac{1}{2}$ inches long; stomach 2 inches long; intestine 5 feet 3 inches; rectum $4\frac{1}{2}$; cæca $2\frac{2}{12}$. The trachea 9 inches long, of uniform diameter, 4 twelfths, with a very slight dilatation toward the lower part, and at the lower larynx contracted to 3 twelfths; the last ring is very large, laterally dilated, but symmetrical; the bronchi come off at the distance of 5 twelfths from each other, and are composed of 25 rings. The tracheal rings 150.

RED-BREASTED MERGANSER.

†*MERGUS SERRATOR*, Linn.

PLATE CCCCXII.—MALE AND FEMALE.

The range of the Red-breasted Merganser is of vast extent. In North America I have found it pretty generally dispersed during winter and even to a late period in spring, from Texas to Labrador; and in the Fauna Boreali-Americana Mr. SWAINSON describes a male killed on the Saskatchewan. No date is mentioned, nor is any thing said as to its habits, which would lead me to believe that it must be a rare bird in the Fur Countries. It is found on the western coast however, and has been shot not far from the mouth of the Columbia river by a gentleman of Boston engaged in the fur-trade, and who is well acquainted with the water-birds of our country. In winter it is to be met with throughout the Union, on almost every unfrozen stream; but when the cold increases so as to close the waters it removes southward until it finds a suitable place.

This species is by choice mostly dependent on fresh water for its sustenance; but when the winters are very severe it throws itself into the salt lagoons or bays, and there seeks for prey to which it is not well accustomed, and which is rather more difficult to be overtaken, than that which is confined in the narrow mountain-streams for which it shews a



Buff-breasted Merganser. Gossander.
1. Male 2. Female



Audubon, John James. 1843. "Buff-Breasted Merganser, or Goosander, *Mergus merganser*, Linn. [Pl. 411]." *The birds of America : from drawings made in the United States and their territories* 6, 387–395.

<https://doi.org/10.5962/p.319524>.

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