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Territorial Behavior of the Anemonefish *Amphiprion xanthurus* with Notes on the Life History

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Abstract The anemonefish, *Amphiprion xanthurus*, was studied on the island of Miyake-jima, Japan, from 1969 to 1972, with special interest in the problem of territory and aggression. General life history studies were also conducted in nature and in the aquarium.

Most populations consist of a pair of fish, but this is due to territorial restrictions imposed by the size of the sea anemone colony. *A. xanthurus* is not biologically monogamous.

Both male and female defend territories, but territorial behavior differs between sexes. Male territorial energies focus outward, in defense of the periphery of the territory, while female territories focus inward on the accessibility of male nesting holes. Female territories may be more than twice as large as male territories and may overlap the nesting holes of two or more males. Dominance seems to determine the location and size of female territories. Males are more aggressive than females in defense of nest holes against invaders. Reproductive success seems to be the primary reason for territoriality in both sexes. Males defend nesting sites throughout the year, probably due to restrictions on availability of nesting space dictated by the size of the sea anemone colony. Immatures and some low ranking adults do not defend territory.

Crowding in aquaria results in increased aggression and more obvious dominance patterns. Invariably, females are dominant over males in the aquarium and display a subtle dominance in natuie.

Both bottom organisms and plankton seem to be important food for adult anemonefish. During the breeding season nearly all the anemonefish in a colony may occasionally rise up above the anemones to feed on swarms of plankton. The frequency of courtship and agonistic displays at such times suggests some sort of social mixing function. Various crustaceans are a danger to the eggs at night, when nests are unguarded.

A. xanthurus is able to tolerate temperatures of 13°C or less, and goes into semi-hibernation in winter. Life expectancy is probably three to four years.

On Miyake, *Cymbactis actinostoloides* and rarely *Stoichactis kenti* are apparently the only sea anemones with which *A. xanthurus* has a symbiotic relationship. At night anemonefish hide deep within the rocks at the base of the anemone or rest in the tentacles of the anemone.

Much attention has been focused in recent years on the meaning and possible purposes of territorial defense and aggression in vertebrates (Lorenz, 1966; Nice, 1941; Burt, 1943; Wynne-Edwards, 1962). Among the fishes it is not surprising that the pomacentrids have attracted interest in this respect, due to their extremely aggressive character and easily observable territoriality (Clarke, 1970; Limbaugh, 1964; Myrberg, et al., 1967; Turner and Ebert, 1962). However, comparatively little attention has been given to territory and aggression as such among the anemonefish, with far more interest being directed toward their symbiotic relationship with various species of sea anemones.

It is our purpose in this paper to record our observations on the life history of the anemonefish, *Amphiprion xanthurus* Cuvier, with particular emphasis being placed on the problem of territory and aggression.

Materials and methods

Observations were begun on a limited scale while free diving in the summer of 1969. In 1970 our studies intensified and continued throughout 1971 and 1972, with the addition of several new anemonefish populations. Beginning in 1970 SCUBA was used for most of our research. A total of more than 50 man-hours of observations was made on 37 different anemonefish populations at various locations around the island of Miyake-jima, in the Izu Islands. Greatest attention was focused on our study area in Toga Bay.

The usual method of observation was to station two to four divers at intervals of 2～3 m around a particular anemonefish population. Observations were made while lying motionless on the bottom, and were frequently recorded on plastic tablets, using grease pencils. Such observations usually lasted from 15 to 30 minutes.

Water temperatures were measured with a hand-carried thermometer during winter, early summer, and autumn dives, when water temperatures were rising or dropping dramatically. In summer, when temperatures were over 25°C, we relied on the records of the Miyake fishing cooperative. Depths were measured at each sea anemone colony using a commercial depth gauge, recorded at low tide on calm days.

Aquarium studies were made during the autumn of 1970 and in the summers of 1971 and 1972. Fish were observed both in tanks with sea anemones and in tanks where the only cover consisted of rocks and dead coral. We experimented with various combinations and groupings of adults and immatures, males and females.

Description of study area

We conducted field work at numerous locations around the island of Miyake (Lat. 34°5′N, Long. 139°30′E). Our major research area was in Toga Bay, where a total of 18 populations was under observation (Fig. 1). These ranged in size from Populations G, J, and N, with one fish each, to Population C, a large colony of 24 fish. By far the greatest portion of our time was spent at Population C.

Toga Bay is situated on the southwest side of Miyake-jima. It stretches from Ma-hana, a rocky point on the south, to the lava cliffs of Ma-ma, about 600 m to the north. Five lava reefs dot the south-central part of the bay, and a massive volcanic reef we call Toga Island looms out of the north end, near Ma-ma. Our study area extends from Ma-ma to the waters surrounding the five reefs, an area of roughly 80,000 m². Relatively swift currents make SCUBA diving dangerous in the extreme southern part of the bay, so we have yet to investigate that area.

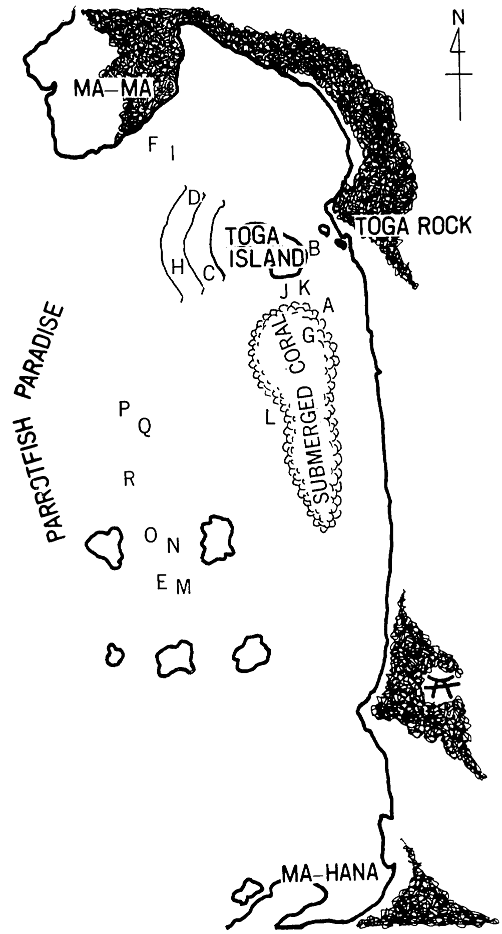

Fig. 1. Map of the Toga Bay Study Site. Letters show anemonefish populations.

Under water, nearly the entire bay is a severely eroded ancient lava flow. Waves from prevailing southwest summer winds and westerly winter winds have ground deep pits and canyons into the soft lava rock. The bottoms of such depressions are usually covered with small to medium sized round boulders, which are, in fact, broken pieces of the former lava flow, ground into their present shape by the restless sea. These boulders are bare of flora and fauna due to their constant dislocation by wave action. Sometimes, only volcanic and organic sand may cover the floor of a particular depression.

Unlike the canyon floors, the perpendicular lava cliffs and occasional bridges and tunnels are rich in life, with coral, hydroids, gorgonians, soft coral, and numerous other colorful fauna appearing in abundance. It is in such areas that our sea anemone colonies and anemonefish populations exist.

An extensive plateau of table coral, *Acropora tumida*, lies between Toga Island and the shore side of the five reefs to the south. Only one anemonefish population (G) was found in this coral area, and it was destroyed after one year of observation, when heavy seas apparently ripped the anemone from its coral base.

Population C, our most important study site, occupies a large sea anemone colony nestled along the wall of a natural amphitheater of lava on the seaside slope of Toga Island, at a depth of roughly 9.4 m at its deepest point. The amphitheater is 5.3 m in total length and 2.6 m in height. It is entirely covered with sea anemones, *Cymbactis actinostoloides* Wassilieff, which are protected from the strong westerly waves and swells by the shoreward oriented walls of the amphitheater. A boulder lies under a blanket of anemones on the inside of the arch of the amphitheater walls. In this large colony 24 anemonefish defend their respective territories.

Although Population C is our most important study area, another should be mentioned here. Population B is located on the perpendicular wall of the shoreward side of Toga Island. The anemones of this colony are nestled in a crevice in the lava rock at a depth of about nine meters. There is little natural cover for the anemonefish. Unlike Colony C, there are no old sea urchin burrowings or natural holes or crevices within which to hide. The two occupants of this territory must seek refuge among the anemone tentacles when approached or try to hide under a large piece of coral that juts out from the lava wall.

Life history

Of the six species of anemonefish occuring in Japanese waters, only one, *Amphiprion xanthurus*, has been recorded around Miyake. This wide-ranging fish can be recognized by its grey face and two striking pale blue stripes on a black base, one slightly diagonal just behind the eye, and the other nearly perpendicular, directly anterior to the anal fin. Adult males are easily distinguished by their brilliant orange caudal fin. Female caudal fins are a pale yellow. Unlike the black-bodied adults, immatures usually have bright orange bodies. A black phase of immature can be distinguished from adults by a continuation of the posterior body stripe on the soft rays of the dorsal fin (Namba, 1964). Juveniles, newly arrived from the plankton, are small (1 cm or smaller), yellow, with the anterior spines of the dorsal fin elongated.

A. xanthurus ranges from Polynesia to the Great Barrier Reef west to East Africa and northward to the Bonin Islands and Japan as far north as central Honshu (Matsubara, 1955). Its presence in Miyake waters, in the apparent absence of other anemonefish, may be due to its ability to survive fairly cold currents. Of this more will be said later.

A. xanthurus is fairly common in Miyake waters, occuring wherever volcanic rocks or coral provide sufficient shelter from typhoon and storm waves to permit the sea anemone, *Cymbactis actinostoloides*, to gain a foothold.

Population densities can best be judged by a look at our study site at Toga Bay. Here, in an area of approximately 80,000 m^2, we have located a total of 18 anemonefish populations, with the total number of fish varying from 90 to 96 at different counts.

Table 1. Populations of anemonefish at Toga Bay Site.

Population	Maximum number of fish	Population	Maximum number of fish
A	3	J	1
B	4	K	2
C	24	L	3
D	2	M	2
E	15	N	1
F	6	O	4
G	1	P	15
H	2	Q	6
I	2	R	4

Most frequently, a single population consists of two adults and occasionally an immature or a small juvenile, but this is not always the case, as evidenced by Table 1. If we consider populations A and B to be two fish each, which is normally the case, then seven out of the 18 Toga Bay populations consist of two fish. This is because the great majority of sea anemone colonies are too small to support more than two adult fish. Population B is a good example. From July, 1970, to late August, 1971, a pair of fish occupied the sea anemone colony, which extends slightly over 1 m in length by 1 m in height, along the perpendicular wall of Toga Island. In August, 1971, another pair of adult anemonefish was observed at the colony, but these fish had disappeared by spring. The population at B has remained at two fish ever since. Territorial defense and aggression, rather than food supply, cold waters, or other factors, almost certainly resulted in the expulsion of the newcomers from the colony. We can conclude this from the following observation:

At Population C we found 24 fish in the large anemone colony described earlier. Nesting males in that colony defend an area with a radius of 40∼60 cm from their nesting hole. Taking this as our measuring stick, it would be difficult for the sea anemone colony at C to support more than 22∼24 fish. Similarly, the small anemone colony at B and others like it can support only a single nesting male. As will be shown, female territories are considerably larger than those of nesting males, so Population B can support only one female as well.

Because of the frequency of anemone colonies of roughly the size of B or only slightly larger, populations of two to four fish are most commonly observed, resulting in a misleading comment often appearing in the literature, that "anemonefish pair for life" (Power, 1969).

Pairing for life is the necessary consequence of the inability of most sea anemone colonies to meet the territorial requirements of more than one nesting male. As we shall see, *A. xanthurus* is not biologically monogamous. Monogamy, when it occurs, is the result of territorial restrictions imposed by the size of the sea anemone colony.

Meaning of territory

Both sexes defend territories, but there are considerable differences in the size and the intensity of defensive aggression between males and females. Briefly stated, during the breeding season male territories are small, centering from 40∼60 cm around nesting holes. They are fiercely defended against other males and against potential invaders. Border confrontations between males are common. Females are tolerated and are often enticed to enter the defended area. Male territorial energies focus outward in defense of the periphery of the territory.

Territory among male *A. xanthurus* appears to be directly related to reproduction and defense of the nesting site. The largest male territory at Population C extends from the nesting hole "a" (Fig. 2) to a distance of 60 cm on all sides.

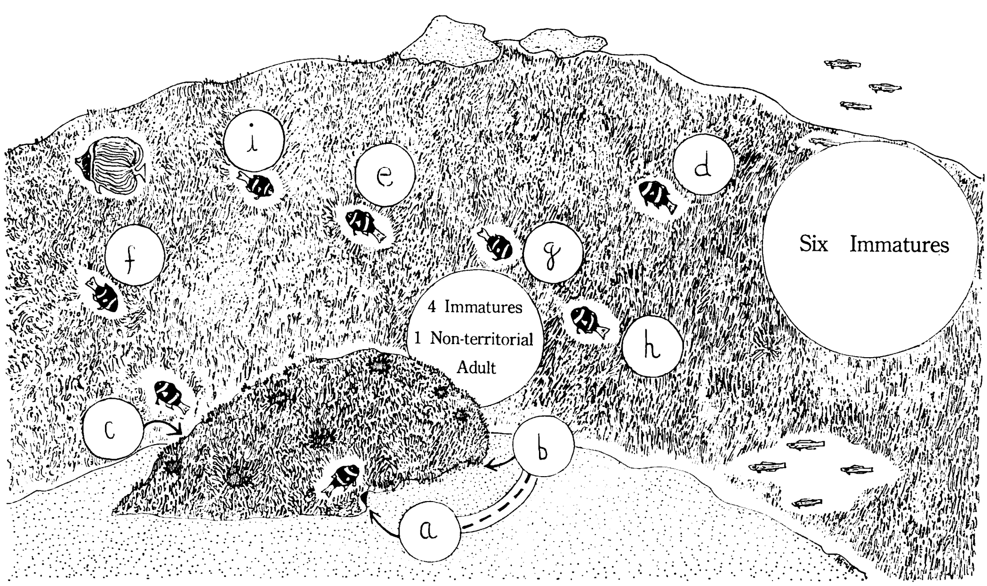

Fig. 2. Sketch of Anemonefish Population C showing male nesting holes (a∼i).

A second nesting hole, " b ", lies at the periphery of the territory, and appears to be much less aggressively defended than hole " a ". Another particularly aggressive male, " g ", defends roughly 55 cm on all sides of his nesting hole.

In large populations, where male territories border male territories, aggressive confrontations along the borders are common, decreasing in frequency and intensity as the breeding season ends and winter approaches, but continuing to a degree as long as water temperatures permit sufficient metabolism.

In the breeding season, such confrontations are often brought about by the attempt of one male to entice a female away from another male's territory. As the outsider approaches or enters his neighbor's territory, the defender rushes his rival, opening and closing his jaws with convulsive jerks that produce a clicking sound audible to human ears for a distance of up to more than a meter. The outsider usually pulls back to his territorial border and aggressively clicks back at his rival until one or the other loses interest and returns to his nesting hole.

A typical confrontation is described in our field notes of August 13, 1972. " Males from nesting holes ' g ' and ' h ' suddenly confront each other with typical threat posture along territorial border. Both begin aggressive clicking displays, which continue for at least ten seconds. The fish are no more than two centimeters apart, facing each other directly. Neither retreats nor appeases, but ' h ' finally backs off a couple of centimeters, turns slightly on his left side, suggesting appeasement display, but not actually displaying. Almost immediately both return to their nesting holes."

In this confrontation, " g " appeared dominant over " h ". This dominance is further suggested by his larger territory 55 cm from nesting hole to the border, compared to 40 cm from " h " 's nesting hole to the border (Fig. 2).

Appeasement displays, so commonly observed in aquaria, are rarely seen in nature in confrontations between two adult males. However, should an immature enter a nesting territory, the defending male will attack fiercely, chasing the invader far beyond the usual limits of his territory. The chase usually ends when the fleeing immature turns on its side and begins a convulsive jerking of its entire body, while drifting slowly toward the surface. This appeasement display ends the chase, and the attacker returns to his territory.

Males not only defend their nesting site from their own kind, but will attack any potential invader. Various wrasses, pomacentrids, butterfly fishes, and even parrotfish are rushed, clicked at, and aggressively driven from the nesting site. The male at Population K attacked us repeatedly on one occasion, striking our regulators and face masks with clicking attacks, and aggressively biting our hand as we examined the eggs in his nesting hole.

Female territories are considerably larger than those of nesting males, and may overlap the territories of two or more males. For example, female I of Population C occupies a territory approximately 2.75 m long, 1.75 m in width, and 1.75 m in height. This territory overlaps the nesting sites of males " a-b ", " g ", and " h ". Female II's territory overlaps nesting holes " c " and " f ". These are the two most aggressive of six adult females in the population and have the largest ranges.

Border confrontations between dominant females are rare. Boundaries between female territories are vague and only casually defended. Female territorial energies focus inward on the accessibility of male nesting holes.

Apparently dominance is an important consideration in size and location of female territories. Females I and II hold the largest territories in Population C. The location of both territories, in the center of the sea anemone colony, overlapping both boulder and amphitheater nesting holes appears superior to other smaller female territories alone the top of the amphitheater. One small, apparently low ranking adult female does not defend a territory, but aggregates with immatures at a point between the boulder and the north-central wall of the amphitheater (Fig. 2). She occasionally enters the territory of I, to meet male " a-b " at nesting hole " b ". Such visits are of short duration, occuring when female I is in the area of nesting hole " g " or " h ", and often end with a chase and appeasement display, but never with the face-to-face threat posturing so common among males.

The vagueness of territorial boundries and lack of border confrontations among dominant females is due to the inward orientation of female activity. The typical territorial female moves constantly between male nesting holes within her territory, feeding, courting, or merely resting in a sheltered location. Her attention focuses to a much greater extent on the male nesting holes within her territory than on defense of the periphery.

Females help defend male nesting sites from predators, and it is a common sight to see a female aggressively chase a wrasse from her territory. However, when the nesting hole is actually threatened, it is the male that defends with the greatest intensity. For example, the female at Population K repeatedly clicked at us as we searched for eggs, but it was the male that struck our regulators and masks. The female always remained several centimeters behind the male. Females in small populations of two fish seem to be more aggressive than those in larger populations, possibly due to the comparative lack of opportunity for aggressive outlets.

For both male and female, reproductive success seems to be the primary reason for territoriality. In the case of males, all territorial activity is centered around the defense of the nesting hole. Among females, access to male nesting sites appears to be most important: the more dominant the female, the larger the territory, and the greater the number of male nesting holes.

Unlike many of the pomacentrids for which data are available, *A. xanthurus* males defend their nesting sites throughout the year, except during periods of low water temperature, when their metabolic rate is too low to permit much activity. However, the same lack of activity prevents newcomers from attempting to establish territory in the sea anemone colony. The nature of the anemonefish's symbiotic relationship with the sea anemone dictates the necessity to defend a nest site beyond the limits of the breeding season. To lose a nest site within the restricted limits of the sea anemone colony could result in the loss of a breeding position in the colony in the following year. There are only a limited number of nest sites in a particular anemone colony, and apparently they must be defended throughout the year.

Immatures and low ranking adults do not defend territories. In Population C, six immatures aggregate at the extreme upper north end of the amphitheater, and four others aggregate with the low-ranking female described above between the boulder and amphitheater wall toward the center of the colony. Immature activity consists of considerable chasing and displaying, but with no noticeable pattern of dominance or individual territory. The behavior of immatures is reminiscent of Toga Farm puppy litters in mock combat on the front lawn.

Aquarium studies, hierarchy, and female dominance

Okuno (1964) and others have noticed the affect of crowding and population density on aggression and hierarchy. The most striking aspect of the behavior of *A. xanthurus* when confined in rather small aquaria, either with or without sea anemones, is the fish's fiercely aggressive disposition. Within a day after confinement of three or more fish in a 60 cm × 30 cm × 36 cm aquarium, a very definite pecking order is established. Invariably, the dominant fish is a female. Adult females are usually larger than adult males, but dominance appears to also be related to a more aggressive attitude on the part of females. After the hierarchy is established, males may tolerate other males in the same tank, but more often than not, the dominant female continues to attack other adult females in the tank. The clicking threat posture so common among males in nature, but less often observed among females, is continuously used by the dominant female against all other anemonefish in the tank, male and female, until the hierarchy is established and her position recognized.

Three experiments with two adult females in the same tank have ended with the low-ranking females being removed to save their lives. Caudal and dorsal fins were badly torn in each case, and the low-ranking fish were so continuously harassed by the dominant females that they were unable to eat.

Mariscal (1972) found little agonistic behavior among anemonefish isolated from anemones. Our findings are somewhat different, and may result in part from the small size of our aquaria. Another possible explanation may be related to the age of the experimental fish. We used adult fish in most of our experiments. The age of *A. xanthurus* used in Mariscals' work is not stated, although all of his photographs show juveniles. Our experiences with anemone fish both in aquaria and in nature show adult fish to display considerably more agonistic behavior than immatures.

Another important factor may be whether or not dominance and hierarchy have been established among a group of fish prior to capture and confinement. We used four fish in each of our experiments, taking core to capture each from different anemones. The most intense agonistic behavior occurs in the first several hours of confinement, until a dmoinance pattern is established. Our experiments with *B. frenatus* are similar in this respect.

As we have seen, in nature it is the male that appears to be most aggressive, but this is misleading, resulting from the equilibrium that exists among members of a natural population and from the specializations in male and female territorial behavior described above. Two aspects of male-female relationships in nature strongly suggest female dominance. Female territories are often more than twice as large as male territories and may overlap two or more male nesting sites. Also, it is the female that plays the dominant role in courtshipdisplays. She approaches the nesting site in typical threat posture. The male approaches the periphery of his territory and meets her with what appears to be a typical quivering appeasement display. This becomes a courtship display when the female begins a similar quivering, ending with both fish circling slowly around each other or swimming side by side, bodies jerking convulsively.

Feeding habits

Namba (1964) examined the stomachs of 28 *A. xanthurus* collected at Yoron Island in the Ryukyus and found samples of a variety of benthic organisms, including numerous copepods, which are apparently parasitic in the tentacles of sea anemones. Some annelids, amphipods, tiny shrimp, and various eggs were other examples of bottom feeding. Algae, especially monophilamentas, were among the most common foods, but it is not clear whether these were benthic, from the plankton, or both. Our observations of bottom feeding are rare, but it is common to see an anemonefish dart out from the protection of the anemone to seize a planktonic organism.

Occasionally in the breeding season, at Population C, nearly every fish in the colony, adults and immatures, will suddenly rise, as if on a given signal, to a position as much as 3 m above the sea anemones, to begin feeding on minute planktonic organisms that have drifted over the colony. Such feeding orgies may last up to three or four min, interrupted by occasional courtship displays, threat postures, and appeasements. It is interesting that we have observed this phenomenon only during the breeding season. Similar aggregations above the bottom have been reported associated with the breeding season for three other pomacentrids, *Chromis chromis* (Abel, 1961), *C. multilineata* (Myrberg et al., 1967) and *Hypsypops rubicunda* (Clarke, 1971), and apparently represent a kind of communal courtship. This does not seem to be the case with adult *A. xanthurus*, since most participants have already established breeding territories and potential partners, as described above. However, the occurrence of occasional courtship and agonistic displays in the midst of feeding activities is suggestive of some sort of social mixing function, and may serve to bring maturing immatures into contact with sexually mature adults. Even so, such aggregations seem to be primarily associated with feeding on swarms of plankton. Three other pomacentrids, *Abudefduf abdominalis*, *Chromis punctipinnis*, and *Dascyllus albisella*, have been reported to school and mix above the bottom while feeding on plankton, but with no apparent social function (Clarke, 1971).

Temperature tolerance

In the aquarium, *A. xanthurus* usually weakens and dies when water temperatures drop below 20°C. However, in nature much colder temperatures are tolerated. We have observed comparatively active anemonefish in 15°C waters, and a pair was collected by hand in 13°C waters in February, 1971, as they looked out from their anemones. Usually, as water temperature drops below 16°C, the anemonefish disappear. For example, fifteen fish were seen in Population C on December 26, 1970, when the water temperature was 17°C. Three days later, the temperature had dropped to 15°C, and we were able to locate only four fish. In April, 1971, with the water temperature at 14°C, we found only a single fish; but, a few weeks later, as temperatures rose above 20°C, the colony became active again with full-grown adults, not newcomers from the plankton. We have similar data from Populations A, B, and E.

A. xanthurus apparently survives periods of cold temperatures in semi-hibernation hidden in crevices and holes at the base of anemones.

Longevity

That *A. xanthurus* can survive cold winter temperatures of at least 13°C is certain. Scales taken from an adult male collected in Igaya Bay had four annuli, and those from a larger female had three. More than 100 scales were examined from both fish. From this and our familiarity with individual markings and personalities of fish at various populations in Igaya Bay and Toga Bay, e.g. males "a-b" and "c" and females I and II at Colony C, and the Sand-Pipe Colony pair at Igaya Bay, all of which were observed over a period of three years, it seems safe to say that nest-guarding males and dominant females are three years old or more. A small adult male we examined had two annuli, as did a sub-adult, with considerable immature orange. The latter suggests that annuli are not related to spawning, since sub-adults apparently do not spawn.

Behavior at night

Power (1969) writes that sea anemones close at night, leaving the anemonefish of find shelter outside. Okuno and Aoki (1959) report that large adult *A. xanthurus* seldom enter the sea anemone. In both cases, our night observations in Toga Bay are of interest. We have never found the sea anemone, *Cymbactis actinostoloides*, entirely closed at night. At Colony C, bare patches of rock were visible between the sea anemones, unlike daylight observations when the entire amphitheater is blanketed with sea anemones. Both at Colonies C and B sea anemones were drawn in slightly toward their base, but there was sufficient room for anemonefish to seek refuge. Our aquarium observations of *C. actinostoloides* are for the most part similar.

At Population C, where there are numerous holes and crevices in which to hide near the base of sea anemones, no anemonefish was seen at night, even though nesting holes and crevices were searched thoroughly. No anemonefish was found within the tentacles of sea anemones. However, at Population B, where no crevices or holes are available within which to hide, both adult anemonefish were found sleeping well within the tentacles of the sea anemones.

Mariscal (1972) found *A. xanthurus* living in symbiotic relationship with 7–9 species of sea anemones. Our Miyake records show it associated with only two species: *Cymbactis actinostoloides* and, rarely, *Stoichactis kenti*. We have no records of it surviving independent of these sea anemones.

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クマノミのなわばり制と闘争性

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クマノミの生態について，東京都下三宅島において1969年より1972年までの3ケ年，特にそのなわばり制と闘争性に関する研究を行なった．さらに，一般的な生活史についても自然状態ならびに水槽飼育により研究した．対象となったクマノミ群は計37群，延50時間にわたりほとんどスキューバを使用して観察した．

多くの群は1対の成魚によって構成されているが，本種は生物学的には単婚性ではなく，これは共生するイソギンチャクの大きさによってなわばりの大きさが制約されるために生じた結果である．

クマノミは雌雄ともになわばりを持つが，それぞれのなわばりの性格は同様ではない．なわばりを維持するための努力は，雄魚では外向的でなわばりの周縁部で侵入者を防ぐことに集中されるのに対し，雌魚では内向的でそのなわばり内の雄魚に守られている巣孔に接近することに集中される．雌魚のなわばりの面積は雄魚の場合の2倍以上を占め，その内には2個体もしくはそれ以上の雄魚の巣孔が含まれていることがある．雌魚のなわばりの場所と面積は雌魚の順位によって定まるようである．巣孔を侵入者から守るためには雄魚の方が雌魚よりもはげしくたたかう．

繁殖可能の状態となることが雌雄両者になわばりを形成させる主要な刺激となるらしい．未成熟魚や順位の低い成魚はなわばりを形成しない．

水槽内に多数の個体を収容するといっそうはげしく闘争し，個体間の順位は自然状態より明らかになる．雌魚は雄魚より常に優位であるが，自然状態では雄の優位性は雄に接近したときの微妙な行動で示される．底生生物とプランクトンがクマノミの主要な食物である．甲殻類は親魚が卵を守っていない夜間に被害を与える．

クマノミは13°Cまたはそれ以下の低水温に耐えることができるが，冬季には半冬眠状態となる．その寿命は3～4年であろう．

クマノミが共生するイソギンチャクは三宅島では主としてサンゴイソギンチャクと稀にハタゴイソギンチャクに限られるようである．クマノミは夜間はイソギンチャクの着生している岩の間に深く潜むか，その触手の間に休んでいる．

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