

Man and Crabs in Yaeyama Folk Song: Crab-species Identification and the Folkzoological Background

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Abstract

The Yaeyama Islands have been called the province of poetry and song since ancient times. The islands are a treasury of folklore that has attracted many scholars for many years. The islands are rich in folk songs that deal, humorously or ironically, with the small animals living near human habitats. Among the innumerable songs about crabs in particular, the 'amparunumidagaama yunta' song is most popular. Amparu is a mangrove tideland located about 10 km northwest of Ishigaki City and is a paradise for coastal fauna and flora. The song describes the morphological appearances and behavioral characteristics of 15 species of small crabs at Amparu, and personifies them in a manner unique to the genre of yunta songs in the Yaeyama Islands. There is still some uncertainty about the identities of the crabs in the song. To try to identify the species, we studied the folkzoological context of the song in the vicinity of Amparu on Ishigaki Island.

Key words : amparunumidagaama yunta, Yaeyama Islands, folk song, man and crabs, Ryukyu Archipelago, folkzoology.

Introduction

The Ryukyu Archipelago is located in the southernmost, subtropical part of Japan. The Archipelago consists of four major island groups, from north to south as follows: the Amami Islands, Okinawa Islands, Miyako Islands, and Yaeyama Islands (Fig. 1). The species diversity of plants and animals in the Archipelago is much greater than in mainland Japan. In particular, the Yaeyama Islands (Fig. 2; Table 1) have a rich repertoire of folk songs (Ohyama, 1994). The folk songs of Yaeyama are generally classified into two types: *fusi-uta*, or tunes, and *shigoto-uta*, or working songs. The former developed into chamber music under the patronage of the upper-class aristocracy, and are sung to the

accompaniment of many musical instruments; the latter were traditionally sung by commoners, without instruments. Working songs are further divided into three main groups—*yunta*, *jiraba* and *ayou*—that are sung on different occasions. *Yunta*, for example, are sung during the construction of a house, at a family feast or ceremony, or by participants placed in separate circles during the weeding of a paddy field.

The working songs are closely tied to the rhythms of everyday life in Yaeyama (Ohyama, 1994), and songs that describe the ecology and life cycles of plants and animals have been studied by folklorists and biologists alike. Many of the songs are about crustaceans, including the 'amparunumidagaama yunta'. Being very well known, this song is deeply rooted in the



Fig. 1. The Ryukyu Archipelago. The Ryukyu Archipelago consists of four major island groups: the Amami Islands, Okinawa Islands, Miyako Islands and Yaeyama Islands from north to south, with small inhabited or uninhabited island, respectively (see also Table 1).

life and work of the people, and also features a wide variety of crabs (Takeda and Ohyama, 1989). It was once sung by separate groups of men and women while they worked in the fields. The personification of crabs in this yunta is a good starting point for studying the relationship between humans and crabs in the Yaeyama Islands.

'Amparunumidagaama yunta' first appeared around the time when a new head-tax system (*jintouzei*) was extended to the people of the island in 1637 (Arasaki, 1987). It was first sung in the Arakawa district of Ishigaki City, but later spread to the Ishigaki, Ookawa and Tonoshiro districts. The song is still heard in these districts, today. Amparu, the setting of the yunta, is a mangrove tideland about 10 kilometers northwest of downtown Ishigaki, on an inlet in Nagura Bay (Figs. 2 and 3). Today, people only go to this area to gather shellfish, or to catch *gazami* swimming crabs (*Portunus pelagicus*), or mangrove crabs (*Scylla serrata*). According to the local elderly people, *sumo* wrestling tournaments and horse races (*katabaru-uma*) were once

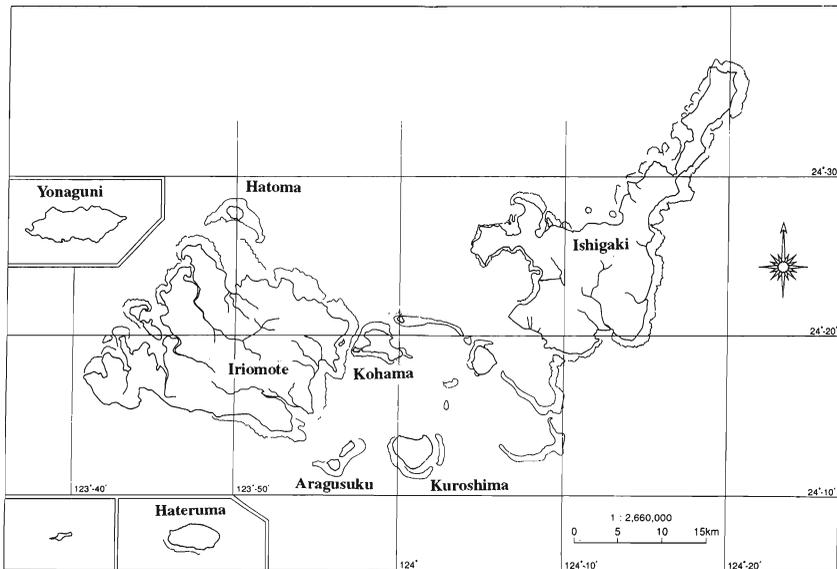


Fig. 2. The Yaeyama Islands. Thin lines around each island, show fringing coral reef margins. See also Table 1 for the size and population of each inhabited island belonging to the Yaeyama Islands.

Table 1. Population and area of the Yaeyama Islands as of 1990.

Island name	Area(km ²)	Population
Ishigaki Island	221.24	42178
Iriomote Island	284.44	1694
Hateruma Island	12.46	666
Kuroshima Island	9.83	207
Kohama Island	8.14	486
Taketomi Island	5.41	263
Aragusuku Island	3.31	14
Hatoma Island	1.01	57
Yonaguni Island	28.52	1890
Total	574.36	47455

held on the tideland, too.

Much has been written about the identities of the crabs that appear in the Amparu yunta (Miyara and Miyara, 1930, Takara, 1969, Nohara, 1976, Shiota, 1976, Miyara, 1980 and others). The identifications by Oshima and Miyake (1938), Oshima (1962), and Nakasone and Shokita (1973) were backed by thorough ecological and/or taxonomic investigations, but some uncertainty remained. Our study is based on firsthand observation of the habits of crabs in the Amparu area, supplemented with oral data provided by informants.

The lyrics of the yunta describe vividly the appearance and behavior of the many kinds of crab that inhabit the local mangrove tidelands. The lyrics are presented below as they appear in Kishaba (1970) with the literal translation by us (see also Note 1).

Line no.

1. *Amparunu midagaama dendo* (I am the master of the river, my name is Amparunu Midagaama) [refrain omitted]
2. *Suyapiisha shimunuyakai* (From high house to low at low tide)
3. *Sununtiya uinuyakai* (From low house to high at high tide)
4. *Shimnuyaya karabukidendo* (Low house

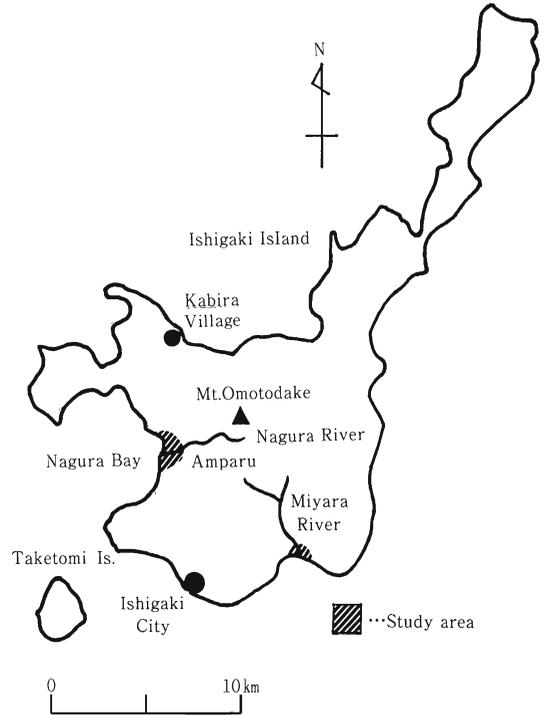


Fig. 3. The study areas in Ishigaki Island.

roofed with tiles)

Uinuyaya gayabukidendo (High house roofed with thatch) (see Note 2)

5. *Midagaamanu shiyounindendo* (Midagaama's birthday is celebrated once every 12 years)
6. *Kankajinu budurinuando* (All the crabs dance)
7. *Gidaasakanya jiyunbininzu* (*Gidaasa* crabs make the arrangements)
8. *Daanaakanya santikininzu* (*Daanaa* crabs form the gallery)
9. *Pingyaakanya pihukininzu* (*Pingyaa* crabs play the flutes)
10. *Kigarankanya taikuutininzu* (*Kigaran* crabs beat the drums)
11. *Muminpikikanya sansinpininzu* (*Muminpiki* crabs play the *shamisen* guitar)
12. *Yakujaamakanya budurininzu* (*Yakujaama* crabs dance)
13. *Abushinkanya kiyonginninzu* (*Abushin* crabs

perform *kyogen* [comic interlude in a cycle of *noh* plays])

14. *Chinankanya durautininzu* (Chinan crabs beat the gong)
15. *Badareekanya boutininzu* (Badaree crabs beat the bars)
16. *Fusamaraakanya sisikabininzu* (Fusamaraa crabs dance the lion dance)
17. *Gashimeekanya pozaninzu* (Gashimee crabs chop the food)
18. *Yafuchankanya kubanninzu* (Yafuchan crabs present offerings to the gods)
19. *Funoorakanya jinpaininzu* (Funooraa crabs serve the food)
20. *Parumayaakanya kiyujininzu* (Parumayaa crabs wait on tables)
21. *Daanaakanya kinbutuninzu* (Daanaa crabs look on)

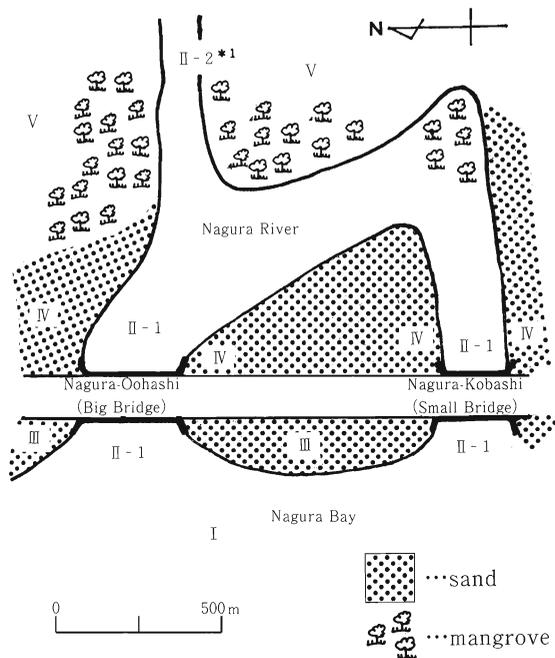


Fig. 4. The study area at Amparu, Ishigaki Island. The location with *1 is ca. 4 km from Nagura-Oohashi (the big bridge).

Amparu was a paradise for the coastal fauna and flora (see Appendix 1), but *hedoro* land of sludge and *akatsuchi* red-soils are now polluting the area. We will touch briefly on the coastal flora of Amparu. The flora is composed of mangrove trees in the tidal zone, and other coastal plants on the higher shore-line. Mangrove species (see Note 3) include *yaeyama-hirugi* tree mangrove (*Rhizophora mucronata*), *akabana-hirugi* (sometimes called *o-hirugi*; *Bruguiera gymnorrhiza*), *me-hirugi* (*Kandelia candel*), *hirugidamashi* (*Avicennia marina*) and *hirugimodoki* (*Lumnitzera racemosa*); the first three are found clustered together.

On the Nagura Bay side of the coastal road (III in Fig. 4) cluster *adan* screw-pines (*Pandanus tectorius*), *oohamabou* coast cotton trees (Linden hibiscus; *Hibiscus tiliaceus*), *mokumaou* coast she oaks (*Casuarina stricta*), *gunbaihirugao* sea-side morning glory (*Ipomoea pes-caprae*), *hamayuu* (sometimes called *hamaomoto*; *Crinum asiaticum*), *kusatobera* fan flower (*Scaevola frutescens*) and *monpanoki* velvetleaf (*Messerschmidia argentea*). The coast cotton tree has been planted on the

Nagura River side of the road (IV Fig. 4) as a windbreak; this shrub grows faster than mangrove, so none of the latter has penetrated and the hibiscus remains a pure stand. There are no mangroves on the left sandbank of the river near Nagura-Kobashi (Nagura small bridge IV in Fig. 4), but there are some scattered areas of mangrove forest further up the river. A few mangrove trees occupy the right sandbank of the river near Nagura-Kobashi.

The fauna of Nagura Bay (I in Fig 4), the lower basin of the Nagura River (II-1 in Fig. 4) and the mangrove forests (V in Fig. 4) includes many shellfish species. Prominent examples are *yaeyamahirugi-shijimi* (*Geloina erosa*), *uminina* (*Batillaria multiformis*), *kanokogai* (*Clithron coronatus*), *nejihida-kawanina* (*Thiara riqueti*), *arasujikemangai* (*Gafrarium tumidum*), *maru-ominaeshi* (*Lioconcha castrensis*), *nunomegai*

(*Periglypta paerpera*), *ryukyu-masuogai* (*Asaphis dichotoma*), and *ominaeshi* (*Pitar pellucidum*). Also present are a few kinds of *komurasaki-okayadokari* land hermit crabs (*Coenobita violescens*), *yadokari* land hermit crabs (*Coenobita* spp.), and *hasamishakoebi* mud shrimp (*Laemedia astacina*). Thirty-three shellfish species and 34 crab and shrimp species were found in a quadrat survey carried out by the Amparu Wild Bird Research Center at Amparu in 1988 (see shellfish listed in Appendix 1). Throughout the year, birds can be seen feeding on crabs and shellfish at Amparu. The migrant visitors and permanent residents include *shigi* birds (family Scolopacidae), *chidor*i birds (family Charadriidae), *iso-hiyodori* large red-billed rock-thrush (*Monticola solitarius*), *eriguro-ajisashi* black-naped tern (*Sterna sumatrana*) and *dai-sagi* large egrets (*Egretta alba alba* and *E. a. modesta*).

Various reptiles also inhabit the sandy coastal area (III in Fig. 4). These include the *ishigaki-tokage* lizard (*Eumeces stimpsoni*), the *okinawa-kishinoue-tokage* lizard (*Eumeces kishinouyei*), the *sakishima-kanabe* snake (*Appeltonotus dorsalis*), the *semaru-hakogame* land turtle (*Cuora flavomarginata*) and the *minami-ishigame* land turtle (*Mauremys mutica*).

The mangrove forest (V in Fig. 4) and the lower basin of the river (II-1 in Fig. 4) are ideal places for observing the interesting behavior and habits of the semi-terrestrial *minami-tobihaze* goby (*Periophthalmus argentilineatus*).

Study Site and Method

In August 1983 and December 1987 we visited three areas: Nagura-Oohashi (Nagura big bridge), Nagura-Kobashi (Nagura small bridge) and the Nagura River basin (Figs. 3 and 4). Our study was focused on crabs mentioned in the yunta, so crabs of the upper river basin, terrestrial crabs, and crabs on reef flats or reef margins were excluded from the survey. We also gathered

oral data from elderly people in the area by collecting crabs and showing the crabs to them. Our informants provided local names for the crabs, and folklore associated with the crabs. To determine whether or not this information was peculiar to inhabitants around the Nagura River, we conducted a similar survey in the Miyara River basin, about 8 kilometers east of Ishigaki City (Fig. 3).

Results

A total of 32 species of crabs were collected during the period from August 1983 to December 1987, in the survey of two river basins. Crabs as well as their habitats, are listed in Tables 2a and 2b. According to Nakasone and Shokita (1973), 15 of these crabs are mentioned in the yunta (a-1 through a-15 in Table 2a); we collected living examples of all these with the exception of the *oohiraisogani* shore crab (*Varuna litterata*). We found only the carapace of the *oohiraisogani* shore crab, next to Nagura River at the foot of Mt. Omotodake (Fig. 3). We were unable to collect five species of crabs that were previously recorded but not in association with the yunta: the *oohiraisogani* shore crab, *minami-okagani* land crab (*Cardisoma carnifex*), *okinawa-anajako* mud lobster (*Thalassina anomala*), *mokuzugani* Japanese mitten-handed crab (*Eriocheir japonicus*) and *benkeigani* sesarmine crab (*Sesarmops intermedium*). These were probably not found because of the short survey period and the difficulty of approaching the river mouth. As shown in Table 2a, Nagura Bay (I in Fig. 4) was inhabited by four saltwater species of crabs: the *kinsengani* armed crab (*Matuta litterata*), *sode-karappa* box crab (*Callapa hepatica*), *kebukagani* hairy crab (*Pilumnus vespertilio*) and *benitsukegani* swimming crab (*Thalamita prymna*). One brackish water species—the *nokogiri-gazami* mangrove crab (*Scylla serrata*)—was also found. Three species of crabs inhabited sand on the outer shoreline (III in Fig.

Table 2a. Distribution of crabs by location in the study areas.

No.*	Role in the yunta	Japanese name	Local name	Common name	Scientific name	Location**					
						Sea I	River		Sand		Man- grove V
							II -1	II -2	III	IV	
a- 1	Hero	Tsunomegani	Midagaama	Ghost crab	<i>Ocypode ceratophthalma</i>				@	@	
a- 2	Arranger	Okagani	Gidaasakan	Land crab	<i>Cardisoma hirtipes</i>				○	○	
a- 3	Stage maker	Okinawa-anajako	Daanaakan	Mud lobster	<i>Thalassina anomala</i>					○	
a- 4	Flute player	Kinsengani	Pingyaakan	Armed crab	<i>Matuta litterata</i>	@					
a- 5	Drum beater	Oohiraisogani	Kigarankan	Shore crab	<i>Varuna litterata</i>	#	#	#	#	#	#
a- 6	Shamisen player	Okinawa-hakusen-shiomaneki	Muminpikikan	Fiddler crab	<i>Uca lactea perplexa</i>		@			@	
a- 7	Dancer	Beni-shiomaneki	Yakujaamakan	Fiddler crab	<i>U. chlorophthalmus crassipes</i>					@	
a- 8	Kyogen actor	Kuro-benkeigani	Abushinkan	Sesarmine crab	<i>Sesarma dehaani</i>			@			@
a- 9	Gong beater	Mokuzugani	Chinankan	Japanese mitten-handed crab	<i>Eriocheir japonicus</i>				○		
a-10	Dancer with poles	Benitsukegani	Badareekan	Swimming crab	<i>Thalamita prymna</i>	@	@				
a-11	Performer with a lion's mask	Kebukagani	Fusamaraakan	Hairy crab	<i>Pilumnus vesperilio</i>	@					
a-12	Cook	Nokogiri-gazami	Gashimeekan	Mangrove crab	<i>Scylla serrata</i>	@	@				
a-13	Offerer	Benkeigani	Yafuchankan	Sesarmine crab	<i>Sesarmops intermedium</i>				○		○
a-14	Table layer	Sode-karappa	Funoorakan	Box crab	<i>Callapa hepatica</i>	@					
a-15	Waiter	Minami-sunagani	Parumayaakan	Ghost crab	<i>Ocypode cordimana</i>				@		
@ : Found in both Nagura River and Miyara River ○ : Found only in Nagura River # : Not found in either Nagura River or Miyara River						5 spp.	3 spp.	3 spp.	3 spp.	5 spp.	2 spp.
							6 spp.		8 spp.		

*No. of crabs according to Nakasone and Shokita (1973).

** II -1 : Brackish water, II -2 : Middle stream, III : Sea side, IV : Inland side.

Table 2b. Distribution of crabs by location in the study areas.

No. of crabs collected	Japanese name	Local name	Common name	Scientific name	Location*					
					Sea I	River		Sand		Man-grove V
						II -1	II -2	III	IV	
b- 1	Kometsukigani		Sand-bubbler crab	<i>Scopimera globosa</i>					@	
b- 2	Rurimadara-shiomaneki	Yakujaama	Fiddler crab	<i>Uca tetragonon</i>						○
b- 3	Hime-shiomaneki	Yakujaama	Fiddler crab	<i>U. vocans vocans</i>					@	
b- 4	Kumadori-ougigani	Yakujaama	Xanthid crab	<i>Baptozius vinosus</i>					@	@
b- 5	Asiharagani		Grapsid crab	<i>Helice tridens</i>					@	
b- 6	Taiwan-gazami	Gasami	Swimming crab	<i>Portunus pelagicus</i>	@					
b- 7	Ougigani		Xanthid crab	<i>Leptodius exatratus</i>	@					
b- 8	Oo-benkeigani		Sesarmine crab	<i>Neopisesarma lafondi</i>						○
b- 9	Minami-kometsukigani	Abatarukan/Ohnukan	Soldier crab	<i>Mictyris longicarpus</i>						○
b-10	Kakure-iwagani		Grapsid crab	<i>Geoprasus grayi</i>					@	
b-11	Menaga-osagani		Sentinel crab	<i>Macrophthalmus verreauxi</i>		@				
b-12	Minami-benitsukegani	Gasame	Swimming crab	<i>Thalamita crenata</i>	@					
b-13	Tsunomechigogani		Ocypodid crab	<i>Tmethypocoelis ceratophora</i>						○
b-14	Minami-okagani	Takatsumekan	Land crab	<i>Cardisoma carnifex</i>		○				○
b-15	Futabakakugani		Sesarmine crab	<i>Sesarma bidens</i>						○
b-16	Hirugahasiri-iwagani		Grapsid crab	<i>Metopograsus latifrons</i>						○
b-17	Yaeyama-shiomaneki		Fiddler crab	<i>Uca dussumieri dussumieri</i>						○
@ : Found in both Nagura River and Miyara River ○ : Found only in Nagura River # : Not found in either Nagura River or Miyara River					3 spp.	2 spp.	0 spp.	0 spp.	10 spp.	4 spp.
						2 spp.		10 spp.		

* II -1 : Brackish water, II -2 : Middle stream, III : Sea side, IV : Inland side.

4)—the *tsunomegani* ghost crab (*Ocyrode ceratophthalma*), the *okagani* land crab (*Cardisoma hirtipes*) and a second type of the *minami-sunagani* ghost crab (*Ocyrode cordimana*). Only the *okinawa-hakusen-shiomaneki* fiddler crab (*Uca lactea perplexa*) inhabited the inter-tidal zone of stones and sand (II in Fig. 4). Two species of the *benitsukegani* swimming crab and the *nokogiri-gazami* mangrove crab inhabited pools of brackish water at low tide. Okinawa-anajako mud lobsters inhabited burrows near the shore that were wet with seawater, and *okagani* land crabs inhabited the dry banks of the river mouth. The *okinawa-anajako* mud lobster builds hill-like nests or burrows of earth and sand 20-40 centimeters high. This species is not a crab, according to Linnean taxonomy, but was included in our survey because it might be regarded locally as a crab. We collected three species of crabs from the mangrove forests and the middle region of the river. The *kuro-benkeigani* sesarmine crab (*Sesarma dehaani*) and the *mokuzugani* Japanese mitten-handed crab were collected in both Nagura and Miyara Rivers, and the *benkeigani* sesarmine crab only in Nagura River. We also collected 17 species of crabs (b-1 through b-17 in Table 2b) in the two survey areas that do not appear in the yunta according to Nakasone and Shokita (1973). Three species inhabit Nagura Bay (I in Fig. 4): the brackish water-living *taiwan-gazami* swimming crab (found mainly in saltwater; *Portunus pelagicus*), the *minami-benitsukegani* swimming crab and the *kebukagani* hairy crab. We collected one species of the *menaga-osagani* sentinel crab (*Macrophthalmus verreauxi*) that inhabits pools of brackish water in the sand and remains after the tide recedes (II in Fig. 4). We were unable to collect a single species from the saltwater sands (III in Fig. 4), but we collected from the landwater side of the sands (IV in Fig. 4) nine species of the *kometsukigani* sand-bubbler crab (*Scopimera globosa*), the *hime-shiomaneki* fiddler crab (*Uca vocans vocans*), the *kumadori-ougigani* xanthid

crab (*Baptozius vinosus*), the *ashiharagani* grapsid crab (*Helice tridens*), the *benkeigani* sesarmine crab, the *minami-kometsukigani* soldier crab (*Mictyris longicarpus*), the *kakure-iwagani* grapsid crab (*Geoprapus grayi*), the *tsunomechigogani* ocyropodid crab (*Tmethypocielis carnifex*) and the *futabakakugani* sesarmine crab (*Sesarma bidens*). From the mangrove forests (V in Fig. 4) we collected five species of the *rurimadara-shiomaneki* fiddler crab (*Uca telragnon*), the *kumadori-ougigani* xanthid crab, the *hirugihashiri-iwagani* grapsid crab (*Metopograsus latifrons*), the *yaeyama-shiomaneki* fiddler crab (*Uca dussumieri dussumieri*), and the *minami-okagani* land crab.

Discussion

(1) Historical and Social Context of Crabs Mentioned in the Yunta

The amparumidagaama yunta describes vividly the appearance and behavior of 15 species of small crabs and personifies them in a manner unique among the yunta of Yaeyama. The word 'among' limits the comparison (terms of reference) to the yunta of Yaeyama, so the claim that the manner is unique cannot be verified by examples of working songs in other countries. It seems likely that personification of natural objects and other living creatures is a wide-spread phenomenon in other countries. However, the manner is undoubtedly unique to Yaeyama. It is this quality of personification that must have led Nohara (1976) to praise the 'amparumidagaama yunta' as being precious and unique. Shokita (1976) thinks that Yaeyama yunta are a type of song more closely bound up than any other with the rhythms of work, because they are not accompanied by musical instruments, and are sung by small groups of people as they labor in the fields or thresh rice, or by large groups of people as they stand on the ground on which a house is to be built. 'Amparu', which literally means pulling up the net, is the name of a clump of mangrove

at the mouth of a river, and is the setting for this song. This yunta, sung at the top of one's voice with simple vitality, may represent the grief of the farming people who stagger under the burden of taxes in kind. It is said to derive from the capture of farmers at Amparu who fled from habited areas to uninhabited ones of the northern part of Ishigaki Island, unable to bear the heavy taxes (Shiohira, 1976). The drive confidence, and cheerfulness of the common folk can be heard in their voices as they celebrate their collective labor, personifying the crabs and dispelling images of gloom. Perhaps their strength is somehow derived from the vast expanse of the *katabaru* tidelands that open onto the interior of the bay at ebb tide, and the energy of the ever-brilliant sun. The inter-tidal zone is home to a variety of bottom-dwelling animals, including 33 species of shellfish, 34 species of shrimps and crabs, three varieties of *gokai* lugworms (*Arenicola* spp.) and a *yumushi* sand worm (?*Echiurida* sp.) (Pamphlet distributed by the Amparu Wild Bird Research Center, 1988; see also Appendix 1). From days of old the Amparu tideland has been blessed by both the light of the sun and the water of the sea, and was an earthly paradise for all living things.

What type of people were these makers of the yunta? The refinement of the lyrics suggests that the people who made them had the opportunity to observe closely the behavior and appearance of crabs. Professional fishermen would most likely not have had the time to lavish on the sophistication and elaboration of a song to such an extent as this yunta. The sense of the lyrics also makes it unlikely that the creators of this yunta were professional fishermen. We surmise that the composers of the lyrics and the song were settled agriculturalists who lived half by fishing and half by farming, and who had full access to both sea and river.

In order to understand the function of the 15 different species of crabs mentioned in this

particular yunta we add a simple commentary on the lyrics (see also Table 2a). Lines 1 through 6 speak of a ghost crab named midagaama who lives in a burrow on the shores of Amparu, where all the crabs on the island gather to celebrate his birthday every 12 years. The 7th and following lines describe the distribution among the different crabs and the preparations for the feast, from the preparation of the food to its arrangement on platters: The okagani land crabs carry the food for the feast (Line 7); the okinawa-anajako mud lobsters form the crowd (Lines 8 and 21); the nokogiri-gazami mangrove crabs chop the food to prepare it for eating (Line 17); the sode-karappa box crabs arrange the food on platters (Line 19); the minami-sunagani ghost crabs serve the food (Line 20); and the benkeigani sesarmine crab procure dried fish as an offering (Line 18). At the same time, the celebration of midagaama ghost crab's birthday is accompanied by a series of musical performances: The kinsengani armed crabs play the flute (Line 9), the oohiraisogani shore crabs beat the drum (Line 10), the okinawa-hakusen-shiomaneki fiddler crabs play the shamisen guitar (Line 11), other beni-shiomaneki fiddler crabs dance (Line 12), other benkeigani sesarmine crabs perform a kyogen drama (comic interlude in a noh play) (Line 13), the nokogiri-gazami mangrove crabs beat the gong (Line 14), the benitsukegani swimming crabs dance and beat on a bar (Line 15), and the kebukagani hairy crabs dance the lion dance with a lion's mask (Line 16).

Arasaki (1987) suggests that this yunta, personifying crabs in the manner of human performers, may have sprung from the *oyamawari*, or twice-yearly (spring and fall) inspection tours of local conditions conducted by government officials. With the establishment in 1637 of an on-duty magistrate to implement and supervise the head-tax system (*jintouzei*), every village and remote island was visited by these officials. It may be assumed that the entire island would

be in an uproar as preparations were made to ensconce and entertain these travelling officials in comfort. It is thought that this yunta mimics those preparations.

Tables 3a and 3b list the behavioral characteristics of crabs in terms of their usefulness to the people of the islands, food, and the ease with which they were seen (e.g., whether diurnal or nocturnal), found and caught. It appears that Miyagi (1972) concluded quite rashly that all the crabs appearing in this yunta did so because they were well known and were sources of food. Hashimoto (1980: pp.66-67) showed by screening tests that many crabs previously thought to be poisonous until now (i.e., containing saxitoxins) are in fact not. It appears that Okinawan lore connecting ciguatoxin (a toxin) with particular 'poisonous' crabs is without secure foundation. Some crab species mentioned in the yunta may have been rejected by islanders because of long-cultivated dietary habits that are not closely linked to food toxicity (see Note 4). It is by no means certain that individual reactions to the ingestion of crabs containing scientifically discernible traces of toxin are always the same. It is also possible that different individuals of the same species of crab did or did not accumulate toxins in their bodies, according to the area in which they were collected. The upshot is that the eating of some crabs raw cannot be discounted, despite longstanding dietary habits. The mokuzugani Japanese mitten-handed crab, the nokogiri-gazami mangrove crab and the benitsukegani swimming crab are eaten even now among the crabs in the yunta. Five species of crabs were previously eaten but are no longer: the tsunomegani ghost crab (see also Note 5), the okagani land crab, the okinawa-hakusen-shiomaneki fiddler crab, the beni-shiomaneki fiddler crab, and the sode-karappa box crab (see also Table 2a).

The okinawa-anajako mud lobster, although not eaten, was useful; in the past its belly section was cooked and ground to powder, then mixed

with oil and used by women to put a sheen on their long hair. Other crabs are a nuisance; the kuro-benkeigani crab, for example, nibbles rice stalks.

Although not used, the kinsengani armed crab (nocturnal) and the kebukagani hairy crab (diurnal) were frequently seen by people who gathered sea shells at low tide. The oohiraisogani shore crab was the least likely to be seen, because it drifts with the currents on seaweed, driftwood, pumice stone and other suspended matter in the sea. This crab also inhabits rivers, so it might have been seen at least occasionally. Other crabs that were not used are the nocturnal ghost crab, and the benkeigani sesarmine crab inhabiting marshes, river banks and mangrove forests.

The intimacy and long history of relations between the islanders and crabs is reflected in a folk belief prevalent throughout Yaeyama: when the construction of a new home is celebrated, nine crabs of any sort, and the yaeyamahirugishijimi shellfish, locally called *kigajou*, must be presented on one plate to the main pillar (*nakabaraa*) of the house, to ensure good fortune and prosperity. In the offering, the total number of individual crabs and shellfish should be odd, not even-numbered. In the past, the crabs used for this ceremony had to be marine crabs, but today any crabs other than those nurtured in fresh water may be substituted. The yaeyamahirugishijimi shellfish inhabiting the floor of the mangrove forests in particular were previously eaten in numbers, so today they cannot be found easily in large quantities. Other types of shellfish are often substituted for this species. Tsunomegani ghost crabs were apparently previously used as offerings on Hatoma Island (Fig. 2; see also Ohyama 1992, and Yamada 1977, for details of traditional fishing activities and ecology of Hatoma). These ghost crabs are larger than a plate, so the claws of each crab were bound with straw or straw rope. It was the custom on Ishigaki Island to catch crabs (species unidentified) from the

Table 3a. Behavioral characteristics of crabs collected in the study areas.

No.*	Japanese name	Common name	Behavioral characteristics		Usefulness to humans	Ease of discovery and capture
			D**	N***		
a-1	Tsunomegani	Ghost crab	○	○	Edible	C
a-2	Okagani	Land crab		○	Edible	R (C in breeding)
a-3	Okinawa-anajako	Mud lobster		○	Hair oil	R (C for finding a nest)
a-4	Kinsengani	Armed crab		○		C
a-5	Oohiraisogami	Shore crab	?	?		R
a-6	Okinawa-hakusen-shiomaneki	Fiddler crab	○		Edible	CC
a-7	Beni-shiomaneki	Fiddler crab	○		Edible	R (small number)
a-8	Kuro-benkeigami	Sesarmine crab	○	○	Harmful to rice	C
a-9	Mokuzugani	Japanese mitten-handed crab	○	○	Edible	R
a-10	Benitsukegani	Swimming crab		○	Edible	R
a-11	Kebukagani	Hairy crab	○			CC
a-12	Nokogiri-gazami	Mangrove crab		○	Edible	C (R; recently)
a-13	Benkeigani	Sesarmine crab	○	○		R
a-14	Sode-karappa	Box crab		○	Edible	C
a-15	Minami-sunagani	Ghost crab		○		R

CC: very common C: common R: rare *No.of crabs according to Nakasone and Shokita (1973) **D : Diurnal ***N : Nocturnal

Table 3b. Behavioral characteristics of crabs collected in the study areas.

No. of crabs collected	Japanese name	Common name	Behavioral characteristics		Usefulness to humans	Ease of discovery and capture
			D*	N**		
b-1	Kometsukigani	Sand-bubbler crab	○		Edible	CC
b-2	Rurimadara-shiomaneki	Fiddler crab	○		Edible	R (very small number)
b-3	Hime-shiomaneki	Fiddler crab	○		Edible	CC
b-4	Kumadori-ougigani	Xanthid crab		○		CC
b-5	Asiharagani	Grapsid crab	○	○	To bore holes in paddy	CC
b-6	Taiwan-gazami	Swimming crab	?	?	Edible	CC
b-7	Ougigani	Grapsid crab		○		CC
b-8	Oo-benkeigani	Sesarmine crab		○		R
b-9	Minami-kometsukigani	Soldier crab	○			CC
b-10	Kakure-iwagani	Grapsid crab		○		C
b-11	Menaga-osagani	Sentinel crab	○			CC
b-12	Minami-benitsukegani	Swimming crab	?	?	Edible	CC
b-13	Tsunomechigogani	Ocypodid crab	○			R (hard to find)
b-14	Minami-okagani	Land crab		○	Edible	C
b-15	Futabakakugani	Sesarmine crab	○			C
b-16	Hirugihashiri-iwagani	Grapsid crab	○			C
b-17	Yaeyama-shiomaeki	Fiddler crab	○		?Edible	R

CC: very common C: common R: rare *D : Diurnal **N : Nocturnal

sea or Nagura Bay, and place them on plates as offerings. Since those crabs had a tendency to escape from dishes, they were also placed in deeper containers as an offering. This ritual, inherited from the age of wooden homes with tiled roofs and a central pillar, is also changing; today, homes are built of concrete and the ritual is performed after construction is completed.

There is also a folk belief in the Yaeyama Islands that certain crabs (species unidentified) and red rice cakes (*mochi*) should only be offered during the Buddhist memorial services on the 25th and 33rd anniversary of a person's death (*ufushokkou*).

On Iriomote Island (Fig. 2) the burrows of the tsunomegani ghost crab—the hero of the yunta—are used as an aid in forecasting the weather at sea. It is said that the sea will be calm the next day if the mouth of the sand crab's burrow faces seaward, but stormy if the mouth of the burrow faces inland. When weather forecasting was not as sophisticated as it is today, the ghost crab was more familiar and important predictor of weather than cloud signs (Takeda, 1993, 1994; see also Note 6).

The tsunomegani ghost crab, ground and mixed with sand is called locally either *muti-izu*

or *mutinuiyu*. Today it is used as chum or bait for catching *nokogiridai* large-eyed bream (*Gnathodentex aureolineatus*). From September through November it is split in halves, tied with straw rope, and used as bait for *anadako* octopus (*Octopus oliveri*). The flesh of the tsunomegani ghost crab's walking legs is also used as bait for *akamatsukasa* squirrel fish (*Myripristis* sp.), called locally *hadaraa*. These fish live on the steep outer slopes beyond the reef margins on Hateruma and Hatoma Islands (Fig. 2). The ghost crab is also widely used in farm households as a tranquilizer to quieten pigs in heat. This crab is therefore a suitable hero for the yunta; it is frequently used in daily life, so it is easy to find as it moves with the tide flow, and it has the physical remarkable characteristic of elongated antenna-like horns over the eyes.

(2) Identifying Crab Species Mentioned in the Yunta

Table 4 and Fig. 5 indicate the characteristics, and possible identities of the crabs mentioned in the yunta, based on the results of Takeda and Ohyama (1989) and this study, and the results of Oshima and Miyake (1938), Oshima (1962), and Nakasone and Shokita (1973). It should be

Table 4. Crab identifications by different authors.

No.*	Role in the yunta	Nakasone and Shokita (1973)	Oshima and Miyake (1938); Oshima (1962)	Takeda and Ohyama (1989; this study)
a-1	Hero	Tsunomegani	Kometsukigani (b-1)	Tsunomegani
a-2	Arranger	Okagani (=Oo-okagani)	Gidaasa-okagani	Minami-okagani (b-14)
a-5	Drum beater	Oohiraisogani	Hamagani (<i>Chasmagnathus convexus</i>)	Taiwan-gazami (b-6)
a-7	Dancer	Beni-shiomaneki	Yakujaamagani (<i>Baptozius vinosus</i>)	Hime-shiomaneki (b-3)
a-8	Kyogen actor	Kuro-benkeigani **	Asiharagani (b-5)	Asiharagani (b-5)
a-10	Dancer with poles	One sp. of benitsukegani	Taiwan-gazami (b-6)	Minami-benitsukegani (b-12)
a-13	Offerer	Benkeigani	Iwa-ougigani (<i>Eriphia sebana</i>)***	Kumadori-ougigani (b-4)
a-15	Waiter	Minami-sunagani	Tsunomegani (a-1)	Minami-sunagani

Refer to Tables 2a and 2b for scientific names and other information.

* No. of crabs in the yunta according to Nakasone and Shokita (1973)

** Note to be further discussed by Nakasone and Shokita (1973) (see the text).

*** Identified later as *Eriphia laevimana* by Oshima (1962)

borne in mind that the natural environment of Amparu has changed considerably since the yunta was composed in the 17th century. Introductions of overseas fish such as *terapia* cichlids (*Oreochromis mossambicus* and *O. niloticus*), *taiwan-dojoo* snakehead (*Channa maculata*) and *hire-namaz* labyrinth catfish (*Clarias fuscus*), have affected the composition of the fauna and population sizes at Amparu. Crabs and their particular natural habitats have been affected by modern fauna introductions (see Note 7). Natural and artificial processes have also affected the geomorphology of Amparu inlet.

In order to get an accurate idea of the difficulty with which crabs can be found and collected, our study was not limited to a particular time of the year. Year-round observation was necessitated by the different seasonal behaviors of different crabs. For example, the okagani land crabs and *hamagani* grapsid crabs (*Chasmagnathus convexus*), are terrestrial or semi-terrestrial and enter the sea in large numbers to spawn during the sixth and seventh months of the old lunar calendar.

Although the ease with which they appear on the table as food may be a strong indication of the familiarity of certain crabs for people, this and other factors affecting familiarity do not fully account for the appearance of certain crab species in the yunta. If nocturnal and therefore rarely-seen crabs had a somewhat unusual appearance or behavior, they could attract human interest and attention. Such an attraction could trigger the imagination of a musically or poetically gifted composer or lyricist at first sight. Some danger always accompanies speculation over artistic creations like the yunta. We suppose that the composer of a yunta did not always have first-hand knowledge of the appearance and behavior of the crabs of which he or she sang. It is also possible that the crabs mentioned in the lyrics simply do not correspond to any actual species of crab: the song may have been primarily an improvisation that did not heed the facts of

biology. Factors other than zoological ones should be taken into account when identifying the species of crabs mentioned in the yunta. In the interest of strengthening materials and data, this study relies more on the inhabitants of the village of Kabira (Fig. 3) than those of Amparu for the identification of local names of crabs. Kabira has been conservatively less affected by recent immigration, and has therefore held on to local tradition and languages more strongly.

The midagaama crab, hero of this yunta, was identified as the kometsukigani sand-bubbler crab by Oshima (1962), but was identified as the tsunomegani ghost crab by Nakasone and Shokita (1973) because of the higher position of its eyes. The height of the eyes could suggest either the menagaosagani sentinel crab or the tsunomegani ghost crab as likely candidates. Lines 2 through 6 suggest the movement of the tsunomegani ghost crab along the shore with the tides.

In Line 7, the gidaasakan crabs carry the food to the feast. Oshima (1935) was unable to identify these crabs, although he did conclude that they are either amphibious or live mainly in damp or humid soil; that they are large and have a red carapace; that they form into groups and go down to the sea around the time of the harvest moon, and accordingly that these characteristics resemble those of the minami-okagani land crab (*Cardisoma carnifex*). Oshima and Miyake (1938), and Oshima (1962) noted that the shell of the gidaasakan crab is a brownish purple and the claws are yellowish; that it normally lives on land, but the females form groups during May and June, and then go down to the sea to spawn, and that at Kabira Village on Ishigaki Island the gidaasakan crab has three names, depending on the season when the spawning occurs, thus suggesting that crabs with these physical and ecological characters are the okagani land crab (*C. hirtipes*). However, Nakasone and Shokita (1973) suggested that the gidaasakan crab

Role in the yunta
(Line no. in the yunta)

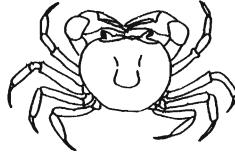
Comparison of crab-species identification between
Nakasone & Shokita (1973) / Takeda & Ohyama (1989; this study)

Hero
(Line no. 5)

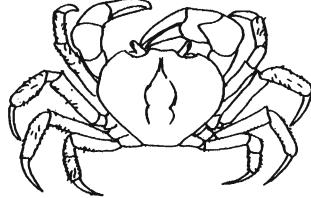


a-1 (*Ocypode ceratophthalma*) (x1/3)

Arranger
(Line no. 7)

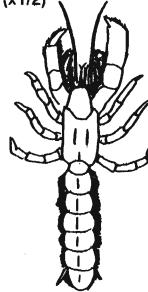


a-2 (*Cardisoma hirtipes*) (x1/2)



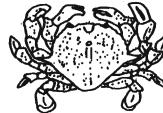
b-14 (*Cardisoma carnifex*) (x1/2)

Stage maker
(Line no. 8)



a-3 (*Thalassina anomala*) (x1/2)

Flute player
(Line no. 9)

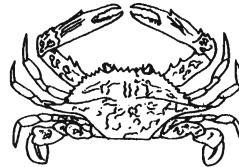


a-4 (*Matuta litterata*) (x2/3)

Drum beater
(Line no. 10)



a-5 (*Varuna litterata*) (x1/2)



b-6 (*Portunus pelagicus*) (x1/2)

Shamisen player
(Line no. 11)

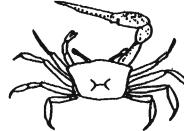


a-6 (*Uca lactea perplexa*) (x1)

Dancer
(Line no. 12)



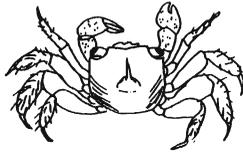
a-7 (*Uca chlorophthalmus crassipes*) (x1)



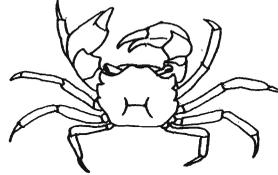
b-3 (*Uca vocans vocans*) (x1)

Fig. 5. Crabs in the yunta and crab-species identification between Nakasone and Shokita (1973) and Takeda and Ohyama (1989; this study). Crabs shown in the left side of this figure are identified by Nakasone and Shokita (1973), while those on the right one by Takeda and Ohyama (1989; this study). The crab, singly placed in the center, means no difference of opinion between crab-identifications (see also Table 4).

Kyogen actor
(Line no. 13)



a-8 (*Sesarma dehaani*) (x1/2)



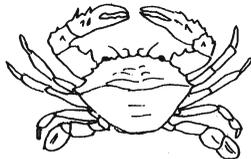
b-5 (*Helice tridens*) (x1/2)

Gong beater
(Line no. 14)

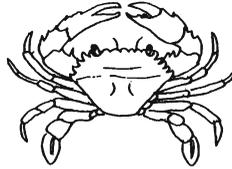


a-9 (*Eriocheir japonicus*) (x1/2)

Dancer with poles
(Line no. 15)



a-10 (*Thalamita prymna*) (x1/2)



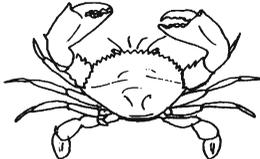
b-12 (*Thalamita crenata*) (x1/2)

Performer with
a lion's mask
(Line no. 16)



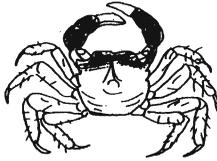
a-11 (*Pilumnus vespertilio*) (x1)

Cook
(Line no. 17)

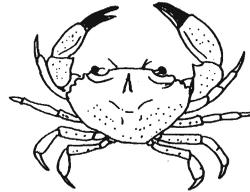


a-12 (*Scylla serrata*) (x1/4)

Offerer
(Line no. 18)



a-13 (*Sesarmops intermedium*) (x1/2)



b-4 (*Baptozius vinosus*) (x1/2)

Table layer
(Line no. 19)



a-14 (*Callapa hepatica*) (x2/3)

Scale 0 2 4 6 8 10cm

Walter
(Line no. 20)



a-15 (*Ocypode cordimana*) (x1/2)

in the yunta is the okagani land crab: because the okagani land crab is called by three different names at Kabira, and because gidaasakan crabs are called at Kabira by a different name, *takanotsumekan* crab. The *gidaasakan* crab bears the same name as is used in the yunta, but inhabits lowlands like the mangrove forests and delta grassland, where their burrows are flooded with seawater at high tide, and with fresh water at low tide. This crab is considered unlikely to travel large distances over sea cliffs at spawning time. The behavior of this crab does not match that of gidaasakan crabs in the yunta. Nakasone and Shokita (1973) suggested that the gidaasakan crab in the yunta has larger claws and a larger stride than okagani land crabs, and should be identified as an *oo-okagani* land crab (i.e. a big *okagani* land crab). In any case, we think that the minami-okagani land crab is a more likely food carrier than the okagani land crab, for the following reasons. Firstly, the okagani land crab, unlike the minami-okagani land crab that inhabits the mouths of rivers with its burrows being flooded with brackish water at high tide, is nocturnal, but lives in groups on the banks of the river mouth where the water does not reach even at high tide. Secondly, the minami-okagani land crab is larger than the okagani land crab (see also Note 8), with larger claws that might appear more suitable for transporting food in the imagination of a songwriter. Thirdly, at Amparu, the okagani land crab is less easily caught than the minami-okagani land crab, because it inhabits sandy habitats (III and IV in Fig. 4) and the minami-okagani land crab inhabits earthen banks near mangrove forests, and because the frequency of contact between the okagani land crab and people was lower than that between the minami-okagani land crab and people according to our observation and our informants. Finally, although the okagani land crab is widely held to form groups and go down to the sea at spawning time (Hicks, 1987; Takeda, 1994), and is

supposedly easy to see, in actual fact they were seldom seen even at the peak hours of 8-10 pm at Amparu, on spawning days.

Nakasone and Shokita (1973) identified the drummer crabs in Line 10 as the oohiraisogani shore crab. Their assertion is based on the fact that the local name *kikaraakan* for a certain crab species is used at Kabira. Another local word, and a likely cognate, is *kigaran* which means something like 'wood chips from the chopping of wood', a literal interpretation that has ambiguous significance: wood chips match exactly in appearance the pattern on the shell of the taiwan-gazami swimming crab. This swimming crab is a better candidate, because it also has large legs and is one of the crabs that the islanders eat most frequently today. We presume that this crab has been important for the people for a long time. In addition, we were unable to collect any specimens of the oohiraisogani shore crab from either the Nagura River or Miyara River survey areas (Table 2a). This suggests that the population is so small that frequent encounters between these crabs and humans are unlikely. It is doubtful that oohiraisogani shore crabs were a familiar sight to the islanders, although they may have been encountered more frequently during seasonal migration. Oohiraisogani shore crabs do migrate seasonally upstream in great numbers from the mouth of the river (M. Takeda 1988, pers. comm.). A carapace of this crab was found upstream at the foot of Mt. Omotodake (Fig. 3), but this might not be a remnant of a crab that migrated there or the shell could have been discarded there after the crab was caught by humans or a bird further downstream.

Oshima (1938, 1962) believed that the drummers in Line 10 are hamagani grapsid crabs, but this is implausible; we could not find a single specimen of this species, and the population at the study areas is very limited (M. Takeda 1988, pers. comm.).

We suggest that the dancers in Line 12 correspond

to the *hime-shiomaneki* fiddler crab (*Uca vocans vocans*) and not the *beni-shiomaneki* fiddler crab (*U. chlorophthalmus crassipes*). The latter were rarely encountered in our survey. It could be argued that these crabs have red claws and a habit of waving them, so as a candidate are better suited to the role of dancers. Nevertheless, we favour the *hime-shiomaneki* fiddler crab. It is diurnal and gregarious, and is present in large populations, so it would be more frequently encountered than the *beni-shiomaneki* fiddler crab.

There is room for further investigation concerning the identity of the *kyogen* actors in Line 13. The paddy fields of Amparu today are far from the sea, and no *ashiharagani* grapsid crabs were found in the paddies. However, the distribution of former ridges between paddies indicates that the fields were at one time very close to the mouth of the river. We suppose that the *kuro-benkeigani* sesarmine crabs and *ashiharagani* grapsid crabs once inhabited these ridges. The people dislike the former, because they damage rice (Table 3a). *Kuro-benkeigani* sesarmine crabs are rarely encountered today because they inhabit mangrove forests and the middle part of the river (Table 2a). *Ashiharagani* grapsid crabs may have been encountered more frequently, despite their blackish-brown color and nocturnal habit, so we suggest that the *kyogen* performers were not *kuro-benkeigani* sesarmine crabs but *ashihiragani* grapsid crabs.

The identity of the bar-beating crabs of Line 15 also invites further study. Nakasone and Shokita (1973) suggested that they are a kind of swimming crabs. In general, swimming crabs closely resemble each other in appearance, and some of them live in shallow sea waters. Although oceanic and inhabiting the mouths of rivers, the *minami-benitsukegani* swimming crab is the least difficult species to find and catch, so it is the most likely candidate for the bar-beating role. The *minami-benitsukegani* swimming crab has the habit of bouncing up and down on its legs

when threatened. Both Nohara (1976) and Oshima (1962) thought that the bar-beaters are the *taiwan-gazami* swimming crab. Nohara was intuitively struck by the length of this crab's leg, whereas Oshima notes that *taiwan-gazami* swimming crabs live in the *badaree*, a local name given to a deep and wide river that has to be crossed by a small boat (*watashi-bune*). Neither theory has any obvious connection to the verse. The *minami-benitsukegani* and *taiwan-gazami* swimming crabs occupy the same habits, and both move about by bouncing up and down on their legs, but people are more likely to have encountered *minami-benitsukegani* swimming crabs. Also, the *taiwan-gazami* is not called '*badareekan*' but simply '*gazami*'.

The crab that makes offerings to the gods in Line 18 is most appropriately identified as the red-clawed *kumadori-ougigani* xanthid crab in our opinion, although some are black-clawed. Although it is nocturnal and solitary, the *kumadori-ougigani* xanthid crab can be found under rocks and in the exposed roots of mangrove forests and is collected with ease. It has a unique morphology and distinctive coloration that are also remarkably variable. The purplish-brown shell and red-jointed claws, as well as the pattern of the underside of the mouth and eyes, mimic the make-up of a *kabuki* actor so closely that it is no surprise to find it included in the *yunta*. It is true that the *benkeigani* sesarmine crab also has red claws and a red shell. Nakasone and Shokita (1973) thought that the offerers are the *benkeigani* sesarmine crabs. The *benkeigani* sesarmine crab inhabits the middle part of the river (II-2 in Fig. 4), and we found only one specimen of this species. According to Shokita (1988, pers. comm.), this crab is regularly seen by farmers at work in fields located near the river. Virtually no fields exist now in the vicinity of Amparu, and this probably explains why we could not find many specimens.

We think that the waiters of Line 20 are

ghost crabs, although Nohara (1976) believed that they are the menaga-osagani sentinel crab, with their eyes positioned on two long stalks. Oshima (1962) thought that they are the tsunomegani ghost crab. The local name for this crab is '*parumayaakan*', a word meaning as quick as a horse. This suggests the actions of a scrambling waiter. The tsunomegani ghost crab in general is perfect for this part, whereas the menaga-osagani sentinel crab hardly moves at all.

Notes

Note 1: The following lines were translated by Mr. Robin Thomson, on July 3, 1990. He is an active shamisen performer and composer, and is also an investigator of Japanese and Okinawan performing arts. He has lived in Okinawa for more than 10 years. His translation is also useful for appreciating the yunta.

Line no.

1. The ghost crab on the shore of Amparu
2. Goes to the lower house when the tide is on the ebb
3. To the upper house when the tide is on the flow
4. The lower house has a tiled roof while the roof of the upper house is thatched
5. This is the year the ghost crab was born
6. So all the crabs dance to celebrate
7. The gidaasa crabs are in charge of preparations
8. The daanaa crabs make the stands
9. The pingyaa crabs play the flutes
10. The kigaran crabs beat the drums
11. The muminpiki crabs play the flutes
12. The yakujaama crabs are the dancers
13. The abushin crabs are the actors
14. The chinan crabs beat their gongs
15. The badaree crabs dance with poles
16. The fusamaraa crabs perform the lion dance

17. The gashimee crabs prepare the feast
18. The yafuchan crabs set the holy offerings
19. The funoora crabs lay the tables
20. The parumayaa crabs are the waiters
21. The daanaa crabs are the spectators

Note 2: *Kaya* or *susuki* (Japanese plume grass; *Miscanthus* spp.), *suge* sedge (*Carex amplifolia*) or *chigaya* grass (*Imperata cylindrica*) have traditionally been used for roof-thatching. Tin-roof homes and concrete construction are now popular, and grass-thatching is now rare throughout Japan. Other old uses of kaya grasses are as fodder and other livestock, and as sources of fibre for charcoal sacks. *Miscanthus* species are still much favoured as ornamental and scenic plants.

Note 3: Mangrove forests grow in tropical and sub-tropical coastal regions on tidal river deltas and river banks. The water in and around mangrove forests is brackish, with up to 30 per mill more salt than fresh water (Murai, 1988). Experts dispute the species composition of mangroves, which include 30-80 species, which mainly belong to the family Meliaceae and Sonneratiaceae. In Yaeyama, the dominant mangrove genera are *Avicennia* and *Bruguiera*. These belong to the family Rhizophoraceae (see Appendix 1). A few species of the Rhizophoraceae are cultivated on coasts for flood breaks, wind breaks and erosion control; their sap is used to make dyes for nets and sails, and to make cutch or catechu (tanning material), and they are widely used for firewood and to make charcoal. On Kohama Island (Fig. 2) and some other islands, small quantities of *yaeyama-hirugi* (*Rhizophora mucronata*) barks and stems are used to make a brown dye.

Note 4: The people avoid eating the *kebukagani* hairy crab (*Pilumnus vespertilio*) out of a firm belief that the crab is poisonous. The *mokuzugani* Japanese mitten-handed crab, *sawagani* freshwater-living

crab (*Geothelphusa dehaani*), and the *amerika-zarigani* crayfish (*Procambarus clarkii*) are similarly avoided because their consumption raw allows transmission of paragonimiasis and may lead to pulmonary tuberculosis. *kebukagani* hairy crabs, *tsunomegani* ghost crabs, and *benitsukegani* swimming crabs (*Thalamita prymna*) are free of poison according to Hashimoto (1980), but Yasumoto *et al.* (1983) detected saxitoxins, neo-saxitoxins and gonio-toxins in the first species. This species, with its hairy, grotesque appearance, is not eaten in Okinawa, and there have been no reports of poisoning from it (Shokita, 1986). Nevertheless warnings against its consumption were redoubled. The *benitsukegani* swimming crabs may also be toxic (Shirai, 1982).

Note 5: It was apparently a long time ago that people on Yaeyama stopped eating the *tsunomegani* ghost crabs. Elderly residents remember eating it when they were children. Historical records indicate that this species was also consumed on Miyako Island (Fig. 1) around 1845: Gray *et al.* (1850: p.iii) reported that the Miyako Islanders would thrust their hands deep into the sandy burrows of this crab and extract it with small twigs, thus suggesting that it may have been a delicacy and sought eagerly. The crab was also caught by thrusting a long, slim stick into the burrow to force it out, or by pouring water into its burrow. The people appear to have very familiar with the habits of the crab, since they could determine if the burrow was occupied by inspecting crab traces in the area around a burrow.

According to Vannini (1976), there are no written records of sand crabs (*Ocyopode* spp.) being eaten on the Indian Ocean coast of Somalia, in East Africa. A certain species of sand crabs, which belong to the family Ocypodidae is eaten in other areas bordering the Indian and Pacific Oceans, and this crab is also sometimes used as fishing bait (Guinot 1966, cited by Vannini 1976).

Note 6: Outside the Yaeyama Islands, there is very little folklore and food habit, recorded or not recorded, about crabs. During the present study we could obtain only the following information:

On the main island of Okinawa, on the day before a day of rain, a type of *okagani* land crab piles dirt from its burrow around the mouth of the burrow. As it digs deeper it uses the dirt to build an enclosure over the burrow in order to prevent it from being flooded. People can predict rain when they see this behavior. The behavior of other crabs are used as a clue to the change of seasons. The *mokuzugani* Japanese mitten-handed crab, when full of eggs, migrates from the river to the sea in vast numbers. This takes place during the rainy period that fall during September according to the old lunar calendar and on 8-9 October in the present calendar when flocks of *sashiba*, the migrant, gray-faced buzzard-eagle (*Butastur indicus*) head toward their resting point on the Miyako Islands on their seasonal migrations from the north to the south (Kugai, 1994; Matsui, 1975; Takeda, 1994). On the northern part of the main Okinawa Island the people collect the crabs and make a kind of curd out of them called *kani-doofu*.

In an ancient Ryukyu custom, three crabs were made to crawl along the diaper of a newborn infant (Shimabukuro, 1965). Nakasone and Shokita (1973) stated that the kinds of crabs used for this custom on the northern part of the island included the river-breeding *sawagani* freshwater crab and *mokuzugani* Japanese mitten-handed crab. On Kumejima Island near the main island of Okinawa, crabs are used in a ritual that celebrates the birth of a child. A folk rite involving offerings of crabs during the construction of a new house similar to that on Yaeyama was also conducted on the northern part of the main island of Okinawa (Nakasone and Shokita, 1973). According to this report, upon construction of a new home or a grave, *minami-tenagaebi* freshwater prawns (*Macrobrachium formosense*)

and crabs (the river-dwelling sawagani freshwater crabs and mokuzugani Japanese mitten-handed crabs) were set loose in the four corners of the rooms (if the new building was a house); if a grave was built, crabs and prawns were made to crawl into the entrance of the tomb after the burial and the singing of celebratory songs.

The Miyako Islanders have no ritual in which crabs are offered during the construction of a new dwelling, but they do have a custom that links crabs with childbirth. A type of crab that dwells on the beach and is too fast to catch easily is brought to the newborn and made to crawl along its belly. The species is uncertain, but may be a kind of ghost crab.

Note 7: *Terapia* cichlid (*Oreochromis mossambicus*) was introduced as food to the Okinawan Islands from Taiwan in 1954. Another *terapia* cichlid (*O. niloticus*), *hirenamazu* labyrinth catfish (*Clarias fuscus*), *taiwan-dojoo* and *koutai* snakeheads (*Channa maculata* and *C. asiatica*) were also introduced to Ishigaki Island in the 1960's for food (Kouchi, 1991).

Koi carp (*Cyprinus carpio*) and *ginbuna* carp (*Carassius auratus langsdorfii*), *dojoo* loach (*Misgurnus anguillicaudatus*), *medaka* (*Oryzias latipes*), *taunagi* swamp-eel (*Monopterus albus*) and *taiwan-kingyo* paradise fish (*Macropodus opercularis*) are endemic fresh-water fish living in the area since the Ryukyuan kingdom from 1429 to 1879. Several other fish species were introduced from mainland Japan, America and other countries after the Ryukyu Archipelago was annexed by the Meiji Japanese Government. The *kadayashi* topminnow (*Gambusia affinis*) from North America in 1927 and guppy (*Poecilia reticulata*) from South America in the 1960's were introduced as ornamental fish. The following were introduced for food or as sport: *gengorou-buna* carps (*Carassius cuvieri*) (brought from Taiwan in 1972-1973) and black bass (*Micropterus salmoides*) and blue gill (*Lepomis macrochirus*) (introduced ca. 1963); *naga-buna*

carps (*Carassius auratus* subsp.1) (introduced ca. 1970) and *motsugo* carps (*Pseudorasbora parva*) (introduced ca. 1975) were brought to the Okinawa Islands together with other species maintained by aquaculture. Some species have escaped from aquacultured ponds or water facilities and have become naturalized in rivers or streams. Similar process of introduction and naturalization have affected the indigenous fauna in Okinawa and throughout Japan.

Note 8: According to Burggren and McMahon (1988: p.384), the total weight of *minami-okagani* land crab (*Cadisoma carnifex*) is 400 g, and the total weight of *okagani* land crab (*C. hirtipes*) is 600 g. However, a full comparison between the two cannot be carried out because they did not give no information on the length of the shell, claws and legs of the crabs in question, and on differences in habitat and nourishment, so it is possible that their information on the weight was mistaken. On Okinawa, the shell, claws and legs of the *minami-okagani* land crabs are larger and heavier than observed for the *okagani* land crab (Nakasone, 1989, pers. comm.) as shown in Fig. 5.

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八重山民謡にみるヒトとカニのかかわり： カニの種の特定と民俗動物学的背景

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八重山の島々には身近にいる小さな生物たちを主題に、ときにはユーモラスに、またときにはアイロニカルに歌いあげた民謡が多い。石垣市の西北10キロメートルほど離れた網張（アンバル）にひらけた広大な干潟（カタバル）には、マングローブなどの植物が生い茂り、33種の貝類、34種のエビ・カニ類、3種のゴカイとユムシなどの底生動物相や様々な動物たちが息吹く。四季を問わない生物の楽園は、時には人が相撲に興じ、競馬を楽しみ、貝などを採る場でもあった。ここに生息する生きものたちを題材にとり上げ、歌いあげる人々のエネルギーは、干潮時に湾奥部まで開ける干潟の広大さ、そこにふり注ぐ太陽のまばゆさを背景にした、動植物資源の豊かさと決して無縁なものではない。

このアンバルを舞台に展開される八重山の代表的な民謡である「網張ヌ目高蟹（アンバルヌミダガーマユンタ）」には、15種類ものカニが登場する。カニの生態、形態や行動などを巧みに捉え、擬人化したこのユンタはいわば、「鳥獣戯画」の歌謡版といえるほどの傑作である。しかし、登場するカニの種の生物学的な特定に関して従来いくつかの混乱があった。そこで、カニの民俗学・動物行動学的な今回の調査結果をもとにヒトとカニとのかかわりとその正体を探ってみた。同時に、石垣市からおよそ8キロメートルほど東方を流れる宮良川においてカニの種と分布に関する調査も行った。これらの結果もとり入れながら、ユンタに登場するカニの種の解釈（特定）に関する従来の見解にいくつかの異同と新知見を提示・論述した。

Appendix 1. Flora and fauna cited in the text.

Scientific name	Common name	Japanese name/Local name
(A) FLORA		
(A-1) Trees, shrubs and herbs		
<i>Avicennia marina</i> (Forsk) Vierh.	One kind of mangrove	Hirugidamashi
<i>Bruguiera gymnorhiza</i> (L.) Lamk.	One kind of mangrove	Akabana-hirugi, O-hirugi
<i>Carex amplifolia</i> Boott subsp. <i>dispalata</i> (Boott ex A.Gray)	Sedge	Suge
<i>Casuarina stricta</i> Ait	Coast she oak	Mokumaou
<i>Crinum asiaticum</i> L. var. <i>japonicum</i> Baker	Asiatic poison bulb	Hamayuu, Hamaomoto
<i>Hibiscus tiliaceus</i> L.	Coast cotton tree	Oohamabou/Yuuna
<i>Imperata cylindrica</i> (L.) Beauv. var. <i>major</i>	Grass	Chigaya
<i>Ipomoea pes-caprae</i> (L.)	Sea-side morning glory	Gunbai-hirugao
<i>Kandelia candel</i> (L.) Druce	One kind of mangrove	Me-hirugi
<i>Lumnitzera racemosa</i> (Willd.) Willd.	One kind of mangrove	Hirugimodoki
<i>Messerschmidia argentea</i> (L. F.) Johnston	Velvetleaf	Monpanoki
<i>Miscanthus</i> spp.	Japanese plume grass	Kaya, Susuki
<i>Pandanus tectorius</i> Soland. ex Parkins.	Screw-pine	Adan
<i>Rhizophora mucronata</i> Lamak.	Mangrove tree	Yaeyama-hirugi, Ooba-hirugi/Pinigi, Piniki
<i>Scaevola frutescens</i> (Mill.) Krause	Fan flower	Kusatobera
(B) FAUNA		
(B-1) Birds		
<i>Butastur indicus</i> (Gmelin)	Gray-faced buzzard-eagle	Sashiba
<i>Egretta alba alba</i> (Linnaeus)	Large egret	Dai-sagi
<i>E. a. modesta</i> (Gray)	Large egret	Dai-sagi
<i>Monticola solitarius</i> (Linnaeus)	Large red-billed rock-thrush	Iso-hiyodori
<i>Sterna sumatrana</i> Raffles	Black-naped tern	Eriguro-ajisashi
Charadriidae family		Chidori
Scolopacidae family		Shigi
(B-2) Fish and other fauna in brackish water zones of sea		
<i>Arenicola</i> spp.	Lugworm	Gokai*
<i>Carassius auratus langsdorfii</i> Cuvier et Valenciennes	Carp	Ginbuna/Taaiyu
<i>C. a.</i> subsp. 1	Carp	Naga-buna
<i>C. cuvieri</i> Temminck et Schlegel	Carp	Gengorou-buna
<i>Channa asitica</i> (Linnaeus)	Snakehead	Koutai
<i>C. maculata</i> (Lacepede)	Snakehead	Taiwan-dojoo
<i>Clarias fuscus</i> (Lacepede)	Labyrinth catfish	Hirenamazu
<i>Cyprinus carpio</i> Linnaeus	Carp	Koi/Kuuiyu
? <i>Echiurida</i> sp.	Sand worm	Yumushi*
<i>Gambusia affinis</i> (BairdetGirard)	Topminnow	Kadayashi, Tappuminoo
<i>Gnathodentex aureolineatus</i> (Lacepede)	Large-eyed bream	Nokogiridai
<i>Lepomis macrochirus</i> Rafinesque	Blue gill	Buruu-giru
<i>Macropodus opercularis</i> (Linnaeus)	Paradise fish	Taiwan-kingyo/Tooiyu
<i>Micropodus salmoides</i> (Lacepede)	Black bass	Burakku-basu
<i>Misgurnus anguillicaudatus</i> (Cantor)	Loach	Dojoo
<i>Monopterus albus</i> (Zuiew)	Swamp-eel	Taunagi/Toonnaja
<i>Myripristis</i> sp.	Squirrel fish	Akamatsukasa/Hadaraa
<i>Octopus oliveri</i>	Octopus	Anadako/Umugunaa
<i>Oreochromis mossambicus</i> (Peters)	Cichlid	Terapia, Kawasuzume

Appendix 1. (to be continued)

Scientific name	Common name	Japanese name/Local name
<i>O. niloticus</i> (Linnaeus)	Cichlid	Terapia, Chikadai
<i>Oryzias latipes</i> (Temminck et Schlegel)	Medaka	Medaka/Takamii
<i>Periophthalmus argentilineatus</i> Valenciennes	Goby	Minami-tobihaze/Tontonmii
<i>Poecilia reticulata</i> Peters	Guppy	Guppai
<i>Pseudorasbora parva</i> (Temminck et Schlegel)	Carp	Motsugo
(B-3) Shells		
<i>Asaphis violascens</i> (Forsk.)	Pacific asphis	Ryukyu-masuougai
<i>Atlanta peroni</i> Lesueur	Atlanta	Kuchikireukigai*, Kuchikiregai*
<i>Batillaria multiformis</i> Lischke	Many-formed cerith	Uminina
<i>B. zonalis</i> (Bruguere)	Zoned cerith	Ibo-uminina*
<i>Cerithidea rhizophorarum morchii</i> A. Adams	Horn shell	Itokakehenatari*
<i>Clithon corona</i> (Linnaeus)	Crown nerite	Iga-kanokogai*
<i>C. coronatus</i> (Recluz)	Cornate nerite	Kanokogai
<i>C. coralia</i> (Kiener)	Vertagus	Koge-tsunobuegai*
<i>Coecella</i> sp.	Triton	Sukikuchibaigai*
<i>Gafrarium tumidum</i> Roding	Tumid enus	Arasujikumangai
<i>Geloina erosa</i> (Lightfoot)	Common geloina	Yaeyamahirugi- shijimi/Kigajou
<i>Glauconome corrugata</i> Reeve	Tagelus	Matsukaze-hanagumorigai*
<i>Katelysia hiantina</i> (Lamarck)	Hiat venus	Yaeyama-sudaregai*
<i>Laternula truncata</i> (Lamarck)	Tvuncate lantern clam	Hirokuchisoto-origai*
<i>Latona faba</i> (Gmelin)	Pacific bean donax, Coquina shell	Ryukyu-naminakogai*
<i>Lioconcha castrensis</i> (Linnaeus)	Camp pitar venus	Maru-ominaeshi
<i>Littoraria scabra scabra</i> (Linnaeus)	Scabra periwinkle	Uzura-tamakibigai*
<i>Lunella granurata</i> (Gmelin)	Granulated moon turbo	Kangkugai*
<i>Musculus senhousia</i> (Benson)	Mussel	Hototogisugai*
<i>Nassarius cinisculus</i> (Reeve)	Latticed nassa	Kayanomikanimorigai*
<i>Neripteron tahitensis</i> (Lesson)	Tahitian nerite	Koumori-kanokogai*
<i>Nerita bensoni</i> Recluz	Nerite	Ukon-amagai*
<i>N. squamulata</i> Le Guillou	Cameleon nerite	Maru-amaobunegai*
<i>N. undata</i> forma <i>flamulata</i> Recluz	Nerite	Maguroobu-amagai*
<i>Periglypta puerpera</i> (Linnaeus)	Youthful venus	Nunomegai
<i>Pillucina pisidium</i> (Dunker)	Venus	Umeno-hanagai*
<i>Pitar (Pitarina) pellucidum</i> (Lamarck)	Comb venus	Ominaeshi*
<i>Plicarcularia bellula</i> (A. Adams)	Dog whelk	Kaninotemushirogai*
<i>Psammotaea elongata</i> (Lamarck)	Elongate gari	Masuogai*
<i>Rndilapes variegata</i> (Sowerby)	Variagate venus	Hime-asari*
<i>Saccostrea mordax</i> (Gould)	Little bear conch	Ohagurogaki*
<i>Semele carnicolor</i> (Hanley)	Semele	Samezara-modoki*
<i>Telebralia palnstris</i> (Linnaeus)	Mud creeper	Kiba-uminina*
<i>Thiara rigneti</i> (Grateloup)	Marsh snail	Nejihida-kawanina
<i>Turbonilla candidissima</i> Dall & Bartsch	Turrid	Kagome-itokakegiri*
(B-4) Crustaceans		
<i>Baptozius vinosus</i> (H. Milne-Edwards)	Xanthid crab	Kumadori-ougigani
<i>Callapa hepatica</i> (Linnaeus)	Box crab	Sode-karappa
<i>Cardisoma carnifex</i> (Herbst)	Land crab	Minami-okagani/Gidaasakan

Appendix 1. (to be continued)

Scientific name	Common name	Japanese name/Local name
<i>C. hirtipes</i> Dana	Land crab	Okagani/Takatsumekan
<i>Chasmagnathus convexus</i> De Haan	Grapsid crab	Hamagani
<i>Coenobita violescens</i> Heller	Land hermit crab	Komurasaki-okayadokari
<i>C. spp.</i>	Land hermit crab	Yadokari
<i>Eriocheir japonicus</i> De Haan	Japanese mitten-handed crab	Mokuzugani/Chinankan
<i>Eriphia sebana</i> (Shaw et Nodder)	One sp. of xanthid crab	Iwa-ougigani
<i>Geoprapus grayi</i> (H. Milne-Edwards)	Grapsid crab	Kakure-iwagani
<i>Geothelphusa dehaani</i> White	Freshwater crab	Sawagani
<i>Helice tridens</i> De Haan	Grapsid crab	Ashiharagani
<i>Laemedia astacina</i> De Haan	Mud shrimp	Hasamishakoebi
<i>Leplodius extratus</i> (H. Milne-Edwards)	Xanthid crab	Ougigani
<i>Macrobrachium formosense</i> Bate	Freshwater prawn	Minami-tenagaebi
<i>Macrophthalmus verreauxi</i> (H. Milne-Edwards)	Sentinel crab	Menaga-osagani
<i>Matula litterata</i> (Forsk.)	Armed crab	Kinsengani
<i>Metopograsmus latifrons</i> (White)	Grapsid crab	Hirugihashiri-iwagani
<i>Mictyris longicarpus</i> Latreille	Soldier crab	Minami-kometsukigani
<i>Neopisesarma lafondi</i> (Jacquinot et Lucas)	Sesarmine crab	Oo-benkeigani
<i>Ocypode ceratophthalma</i> (Pallas)	Ghost crab	Tsunomegani/Midagaama
<i>O. cordimana</i> Desmarest	Ghost crab	Minami-sunagani
<i>Pilumnus vespertilio</i> (Fabricius)	Hairy crab	Kebukagani
<i>Portunus pelagicus</i> (Linnaeus)	Swimming crab	Taiwan-gazami/Gasamee
<i>P. sanguinolentus</i> (Herbst)	Swimming crab	Janome-gazami
<i>Procambarus clarkii</i> Girard	Crayfish	Amerika-zarigani
<i>Scopimera globosa</i> De Haan	Sand-bubbler crab	Kometsukigani
<i>Scylla serrata</i> (Forsskal)	Mangrove crab	Nokogiri-gazami/Gaashiimekan
<i>Sesarma bidens</i> (De Haan)	Sesarmine crab	Futabakakugani
<i>S. dehaani</i> (H. Milne-Edwards)	Sesarmine crab	Kuro-benkeigani
<i>Sesarmops intermedium</i> (De Haan)	Sesarmine crab	Benkeigani
<i>Thalamita crenata</i> (Latreille)	Swimming crab	Minami-benitsukegani
<i>T. prynna</i> (Herbst)	Swimming crab	Benitsukegani
<i>Thalassina anomala</i> (Herbst)	Mud lobster	Okinawa-anajako
<i>Tmethypocoelis ceratophora</i> (Koelbel)	Ocypodid crab	Tsunomechigogani
<i>Uca chlorophthalmus crassipes</i> (Adams et White)	Fiddler crab	Beni-shiomaneki
<i>U. dnssnmieri dnssnmieri</i> (H. Milne-Edwards)	Fiddler crab	Yaeyama-shiomaneki
<i>U. lactea perplexa</i> (H. Milne-Edwards)	Fiddler crab	Okinawa-hakusen-shiomaneki
<i>U. tetragonon</i> (Herbst)	Fiddler crab	Rurimadara-shiomaneki
<i>U. vocans vocans</i> (Linnaeus)	Fiddler crab	Hime-shiomaneki
<i>Vanna litterata</i> (Fabricius)	Shore crab	Oohiraisogani
(B-5) Reptiles and amphibians		
<i>Appeltonotus dorsalis</i>	Snake	Sakishima-kanahebi
<i>Cuora flavomarginata</i>	Land turtle	Semaru-hakogame
<i>Eumeces kishinouyei</i> (Stejneger)	Lizard	Okinawa-kishinoue-tokage
<i>E. stimpsoni</i>	Lizard	Ishigaki-tokage
<i>Mauremys mutica</i>	Land turtle	Minami-ishigame

* : Species found in a quadrat survey carried out by the Amparu Wild Bird Research Center at Amparu in 1988.