

日本におけるサシバの秋の渡り

久 貝 勝 盛

Autumnal Migration of *Butastur indicus* Gray-faced Buzzard-eagle in Japan

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サシバは秋田県以南に夏鳥として渡来し低山や丘陵地帯の森林で繁殖する。繁殖は年に1回で卵は2～4個産む。産卵時期は4月下旬から5月上旬である。約1ヶ月間の抱卵後、6月上旬にはヒナがかえる。約35日間程度の育雛期間後、ヒナが巣立つのは7月上旬から中旬にかけてである(小島、1987)。その後、約2ヶ月間の家族生活をした後、9月中旬には渡りの準備が始まる。この頃には数羽のサシバが低山の上空を忙しそうに飛び回っているのをよく見かける。渡りの衝動が高まっていくものと思われる。

9月下旬になると本土の各地からサシバが南下したという情報が入る。渡りのコースと集団渡来地についてはまだ不明な点が多い。

タカ渡りで知られる愛知県伊良湖岬、鹿児島県大隅半島の佐多岬、宮古諸島での調査に加え徳之島、沖縄本島北部辺戸岬、沖縄本島中部中城跡公園、沖縄本島南部喜屋武岬の調査結果等を加味し日本におけるサシバの秋の渡りの概要をまとめた。本稿をまとめるにあたっては岸(1976、私信)、武田(1989)、伊良湖岬の渡りを記録する会(1990)、日本野鳥の会鹿児島支部(1993)、日本野鳥の会八重山支部報(1994)、西表野生生物保護センター(1995、私信)等を参考にした。

なお本稿は1994年に発表した「A Basic Study of Migratory Birds」(県人材育成財団国内国外派遣研究員研究報告書 Vol.2 p.7-37)の一部を加筆修正したものである。

1. What is *Butastur indicus* ?

Butastur indicus is classified as follows: Phylum; *Vertebrata*, Class; *Aves*, Order; *Accipitriformes*, Family; *Accipitridae*, and Genus; *Butastur*. These birds visit the mainland of Japan, south of Akita as a summer visitor. In the spring, they migrate to Japan to breed in the mountainous areas or the hills and leave each fall. Breeding occurs once a year. They lay 2-4 eggs with an incubating period of about 28 days. The feathers of the male Buzzard-eagle are rufoustinged, and the head is grayish brown. The feathers and head of the female differ from the male in that they are dark brown (Kiyozumi 1952, Yamashina, 1980). The female bird is slightly larger than the male. The iris of the juvenile bird is dark blue (Miyakoan dialect: Oo-mi) or, bluish brown (Miyakoan dialect: Tarikasu-mi) and changes into reddish yellow (Miyakoan dialect: Aka-mi) as the young bird grows older. Also, the vertical streaks on the breast of the juvenile change into lateral streaks after the young bird molts (photo1.2). Breeding occurs in Ussuriland, South Manchuria, North China and Japan. These birds winter in Indo-China, the Philippines and North Celebes, and less commonly in Tenasserim, Malaya, the Northern Moluccas, Waigeu and Salamati.

It is during the autumnal migratory season that the birds stop in large flocks at the islands of Okinawa. The first records of *Butastur indicus* in the Okinawa Islands are found in Cyuzan Denshin Roku (1721). Scientific records are noted in Ishigaki Jima Kikou Hen written by Mr. Takuji Iwasaki (1927).



Photo.1 *Butastur indicus*
(Gray-faced Buzzard-eagle)
Juvenile Bird



Photo.2 *Butastur indicus*
(Gray-faced Buzzard-eagle)
Adult Bird

2. The outline of the autumnal migration in mainland Japan and in the southwest islands in Japan.

1). Study localities (1985-1994)

Cape Irako (Aichi Prefecture), Cape Sata (Kagoshima Prefecture), Tokunoshima, the Miyako islands, Cape Hedo (northern part of Okinawa), Nakagusuku park (central Okinawa) and Cape Kyan (southern Okinawa).

2). Study Methods

During the autumnal migratory season, which occurs approximately 2 weeks before and after October 10, detailed data were collected at certain concentration and take off points of the above mentioned Islands. Birds were counted, flying time to the islands was recorded, and the directions of flight, when leaving or coming, were noted using compasses and maps (map of 1/5000), and calculators.

① Cape Irako (Aichi prefecture)

Cape Irako is long and narrow and stretches westward from the pacific shores of Toyohashi city, Aichi prefecture, forming unique shape. The cape is 42 kilometers long and 7 kilometers wide.

The woodland at the center of the Atsumi peninsula, Aichi prefecture, is mainly of secondary woods like *Pinus densiflora* etc. But in the woodland, there are also several large plant communities of laurel forest, *Machilus thunbergii*, *Castanopsis sieboldii* and *Quercus phillyraeoides*. This area has very valuable vegetation.

Cape Irako which is famous for Mr. Bashou Matsuo's haiku, is located at an extension line of the woodland. At this cape, we can see not only the *Butastur indicus* or *Pernis apivorus* but also many thousands of the small birds or the *Hypsipetes amaurotis* during the migratory season. We can also see almost all of the birds that fly into the Atsumi peninsular and fly for the Kii peninsula.

Mr. Tsuji, a representative of a hawk migration society, has counted approximately eighteen thousand of the *Butastur indicus* during the migratory season (fig1.2.3.4).

According to the data of a hawk migration society, the *Butastur indicus* moves from about Sept. 22. Although the birds begin to move completely from Sept. 28. The association has counted about 1,582 during September and about 9,325 during October. The total number of the *Butastur indicus* during September, 1992 was about 1,904 and 4,988 during October, 1992. The migration of the bird will begin on about September 20 and end on about October 16.

A migratory urge may continue for three weeks. There are two Peak times, one is at the end of September and the other is at the beginning of October.

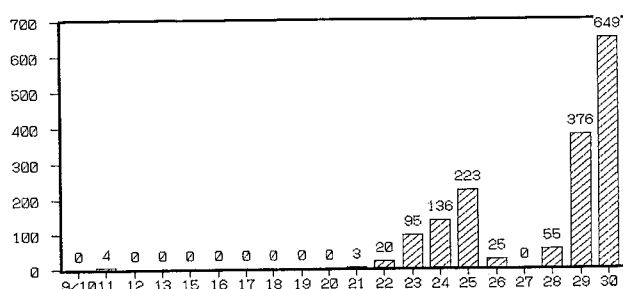


Fig.1 Migration through Cape Irako, 10-30 Sept. 1991
(A hawk migration society of Irako)

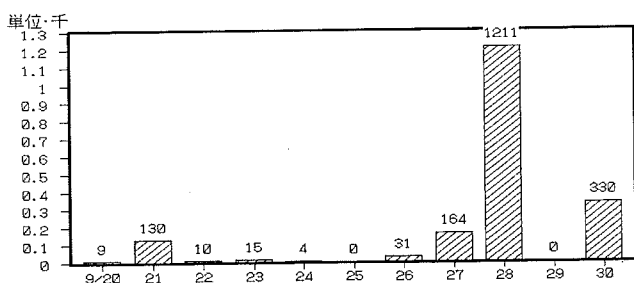


Fig.2 Migration through Cape Irako, 20-30 Sept. 1992
(A hawk migration society of Irako)

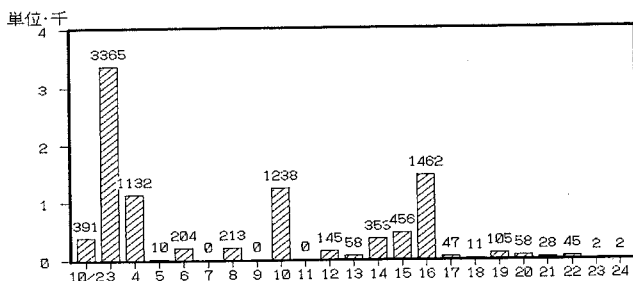


Fig.3 Migration through Cape Irako, 2-24 Oct. 1991
(A hawk migration society of Irako)

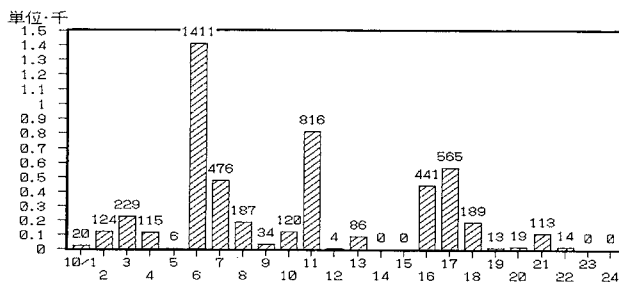


Fig.4 Migration through Cape Irako, 1-24 Oct. 1992
(A hawk migration society of Irako)

② Cape Sata (Kagoshima Prefecture)

At Cape Sata, we can see *Butastur indicus*, *Pandion haliaetus*, *Milvus migrans*, *Accipiter gentilis*, *Accipiter gularis*, *Accipiter nisus*, *Buteo buteo*, *Falco peregrinus*, *Falco subbuteo*, *Falco tinnunculus* and *Accipiter soloensis*. And also we can see not only the migration of hawks but also many small birds.

The author twice examined the migration of the *Butastur indicus* at Cape Sata, from October 12 to 20 in 1993 and from October 2 to 11 in 1994. The examination was done at Tajiri shore, Sata town, from 5:30 early in the morning to 5:00 in the evening (Fig.5.6.7.8. 9.10.11.12).

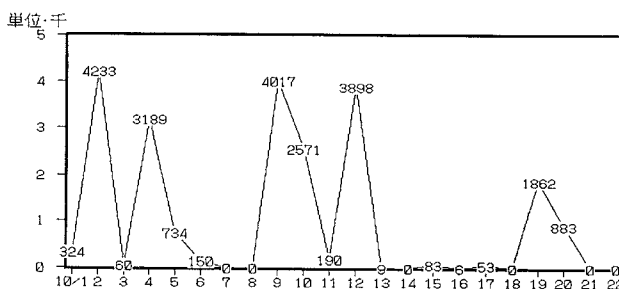


Fig.5 Migration through Takayama, Kagoshima Prefecture, 1-22 Oct. 1993
(Wild Bird Society of Kagoshima)

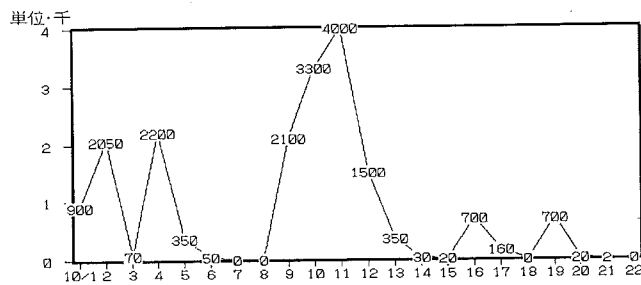


Fig.6 Migration through Mt. Kanamidake, Miyazaki Prefecture, 1-22 Oct. 1993
(Wild Bird Society of Kagoshima)

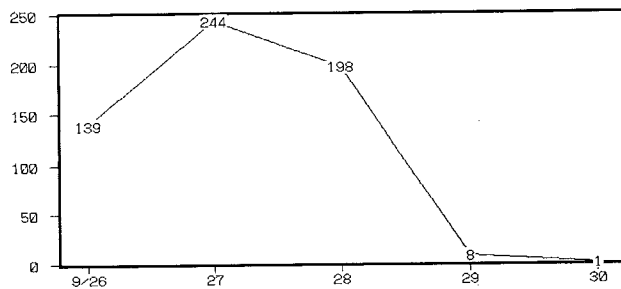


Fig.7 Migration through Takayama, Kagoshima Prefecture, 26-30 Sept. 1993
(Wild Bird Society of Kagoshima)

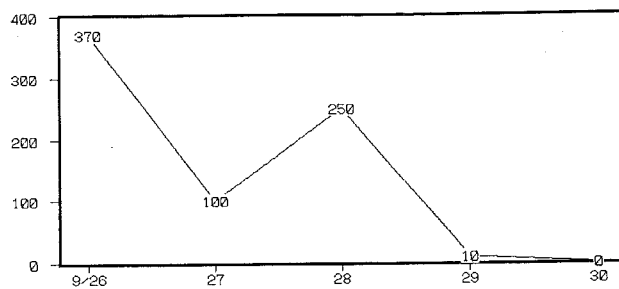


Fig.8 Migration through Mt. Kanamidake, Miyazaki Prefecture, 26-30 Sept. 1993
(Wild Bird Society of Kagoshima)

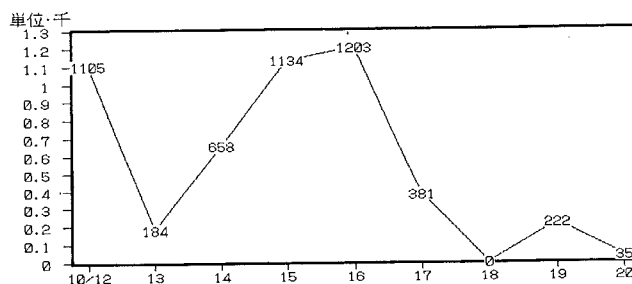


Fig.9 Migration through Cape Sata, Kagoshima Prefecture, 12-20 Oct. 1993

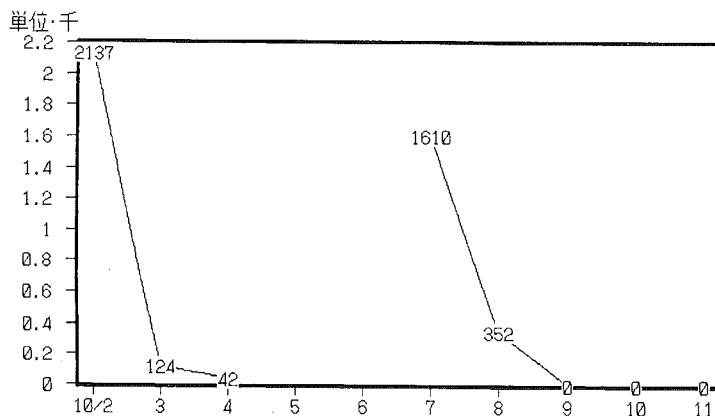


Fig.10 Migration through Cape Sata, Kagoshima Prefecture, 2-11 Oct. 1994

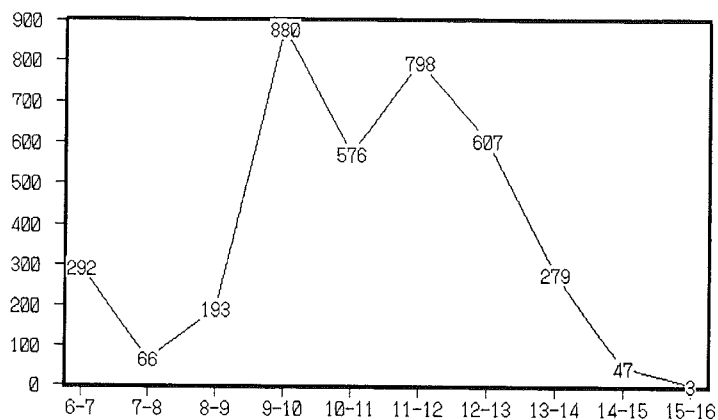


Fig.11 Total Number of *Butastur indicus* observed 12-20 Oct. 1993 by time of day (hour) at Cape Sata

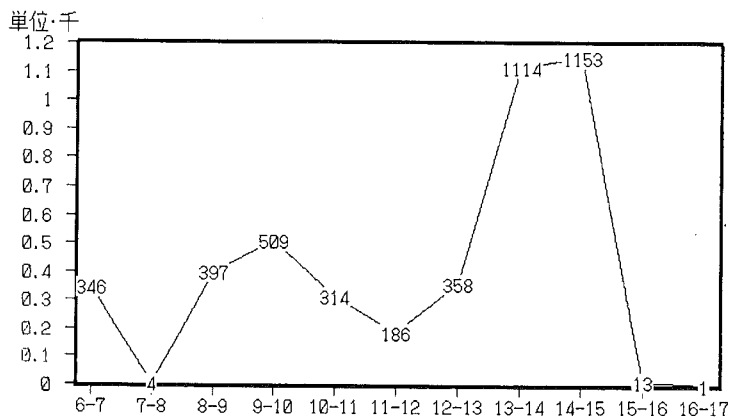


Fig.12 Total Number of *Butastur indicus* observed 2-11 Oct. 1994 by time of day (hour) at Cape Sata

3). Results and Discussion

Butastur indicus begins preparing for migration from the breeding grounds in Japan sometime around the end of August to the middle of September. During this time, the birds are quite often seen flying about busily over the low mountains. The migratory urge gradually grows more intense. At the end of September, the information on the movements of some birds is brought to the author from many places in mainland Japan but the migratory route of this species is still unclear. Some birds breed in Japan and first pass through Cape Irako Aichi Prefecture. The birds then concentrate at Cape Sata, Kagoshima Prefecture. It is said that the peak of the migration is between October 5th and October 10th in the central districts of Japan. In the Miyako Islands, however, the peak is between October 12th and October 18th. (Fig.13). The time differences noted between peaks is due to the time spent in moving to Cape Sata, Kagoshima Prefecture or in waiting for good enough weather to migrate to the Southwest Islands from Cape Sata.

During the migratory seasons of the past several years, the author has collected daily weather data from the weather stations of Kagoshima, Amami, Okinawa, Miyako, Yaeyama, and Taiwan. The data has yet to be carefully examined in detail. It is noted, however, that when a cold front which has covered the Kyusyu area moves eastward and a strong high atmospheric pressure of the continent covers the Southwest islands in Japan, a great number of birds fly to the Miyako islands. In this kind of atmospheric pressure distribution, the direction of wind changes to a northerly direction and aids the migration of the birds (Fig.14). Whether or not it is possible to fly the long distance from Cape Sata, the final junction in Japan, to the Miyako Islands is a question that requires further study. The author has obtained new information on this point from observations at Tokunoshima (Oct. 1987) (Fig.15.16)

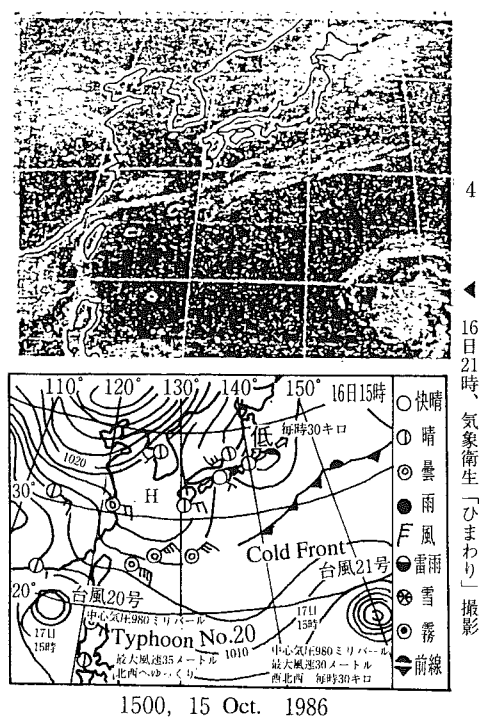
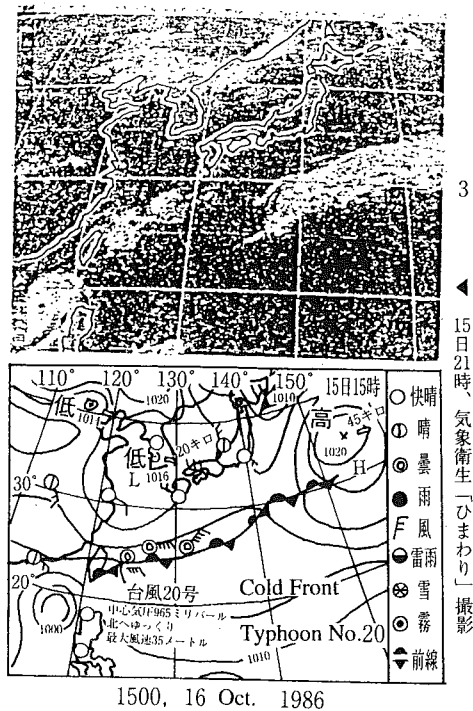
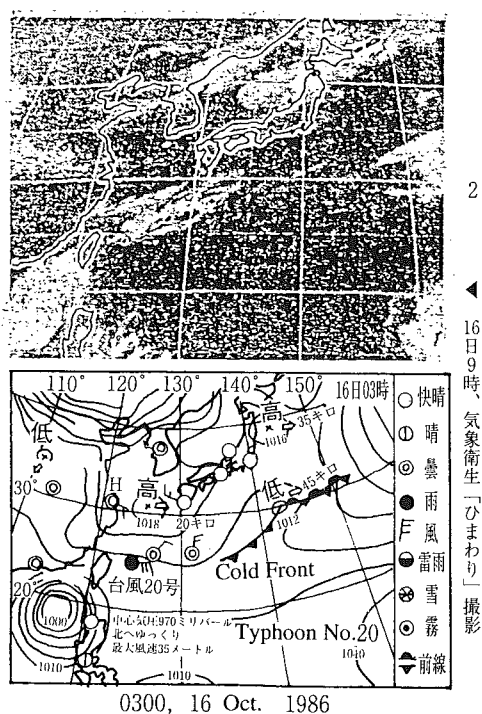
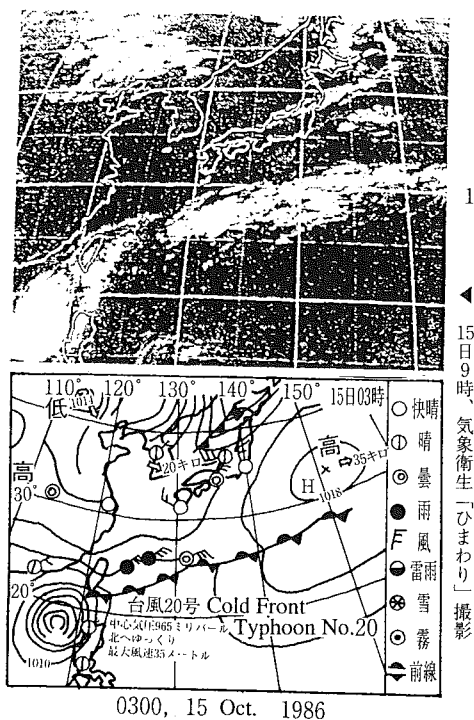


Fig.14 Weather Maps from 15 Oct. 1986 (1+2) and 16 Oct. 1986 (3+4)
Showing Early Morning and Mid-afternoon (2+4) Cold Front Positions.

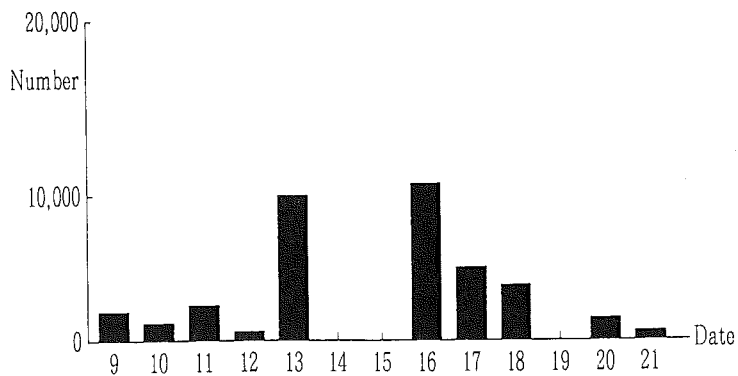


Fig.13 Migration through the Miyako Islands, 9-21 Oct. 1986
The peak, 16 Oct. was 10,630. 14th, 15th and 19th were 0 due to the influence of Typhoon No.20

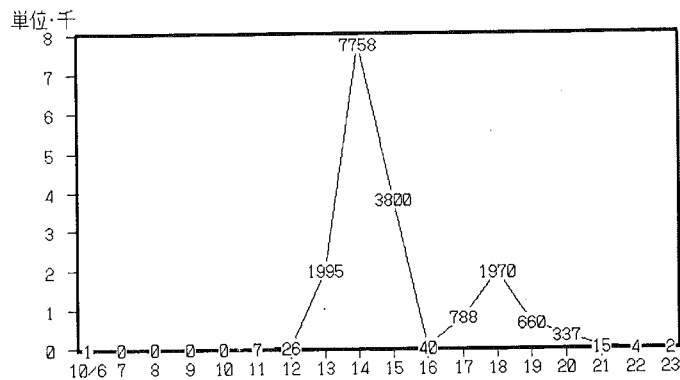


Fig. 15 Migration through the Miyako Islands, 6-23 Oct. 1991
The peak, 14 Oct. was 7,758
(Wild Bird Society of Miyako)

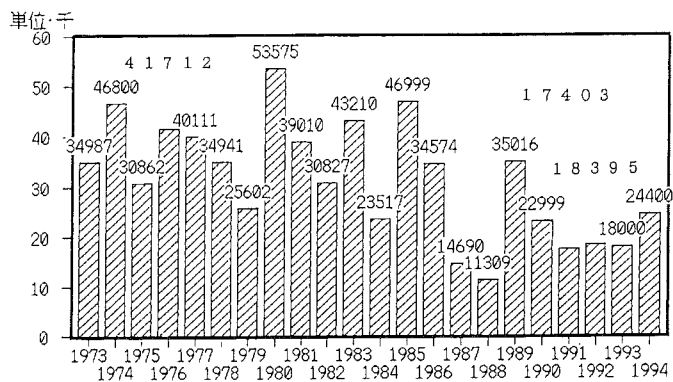


Fig.16 Migration through the Miyako Islands (1973-1994)
(Wild Bird Society of Miyako)

① Mean Flight Speed

According to the flying situation to the Miyako Islands, the earliest arrival time at these islands was approximately 1130, with the flocks being very small. The birds leave the islands in the morning hours around 0600. It is noted that if the birds migrate away from the southern part of Okinawa or the Kerama Islands at this time, it takes them 5 hours and 30 minutes to fly 300 kilometers. The mean flight speed is therefore assumed to be about 55 kilometers per hour. Actually, most of the birds observed flying away from the southern part of Okinawa begin appearing at the Miyako Islands between 1300 and 1400 hours (Fig.17). This indicates a mean flight speed of approximately 33-43 kilometers/hr. It is presumed that arrival at the Miyako Islands is greatly delayed due to disorder of air currents, rain, and adverse wind conditions.

This is the first clear data concerning flight speed. Previously, flight speeds were estimated at 60-100 kilometers/hr. Until now the flight speed of *Butastur indicus* has been unclear. Studies conducted on hawk migrations by the Wild Bird Society of Japan and NHK broadcasting station on 5th October 1986 revealed a surprisingly low speed of 30-40 kilometers/hr. I therefore conclude the mean flight speed of *Butastur indicus* to be approximately 40 kilometers/hr.

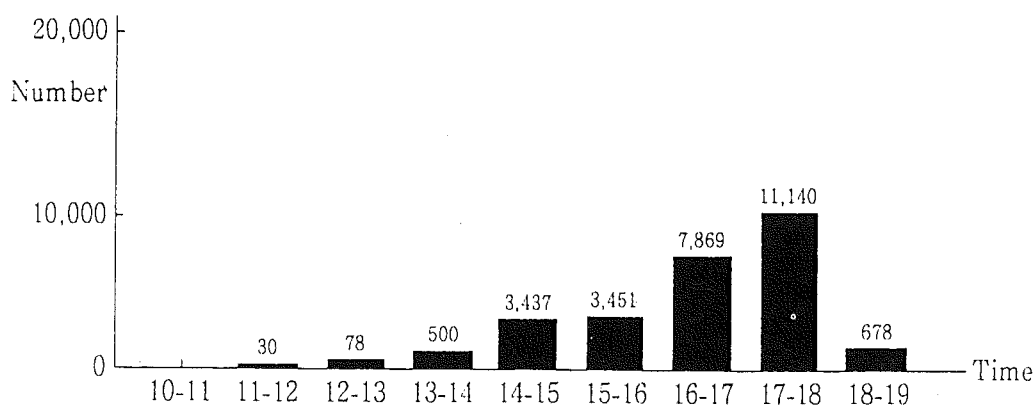


Fig.17 Total Number of *Butastur indicus* observed 9-22 Oct. 1986 by Time of Day Above each bar represents Individuals Observed

② Flight Distance in a Day

How far does *Butastur indicus* fly in one day ? To answer this, careful examination at arrival and departure points must be examined. As a result of examination of data at Cape Irako, Cape Sata, the Okinawa Islands, the Miyako Islands, Taiwan and the Philippines, it is evident that the birds begin leaving these points in the morning around 0600 (Fig.18). Birds arriving at the islands begin roosting at 1800 hours.

If the flight speed is 40 kilometers/hr. and the flight time is 12 hours (from 0600 to 1800), the distance flown by *Butastur indicus* in one day is approximately 480 km. At Cape Sata, these hawks are observed flying away until around 1600 hours. They are best observed between 0600 and 0900 hours. If most of the Gray-faced buzzard-eagles fly away before 0900, it is presumed that the flight distance in one day is from about 300-480 kilometers, or a mean distance of 400 kilometers.

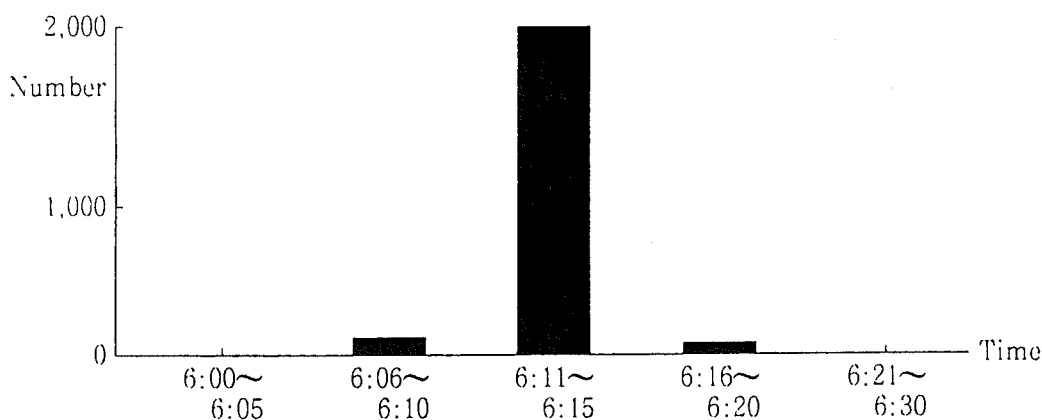


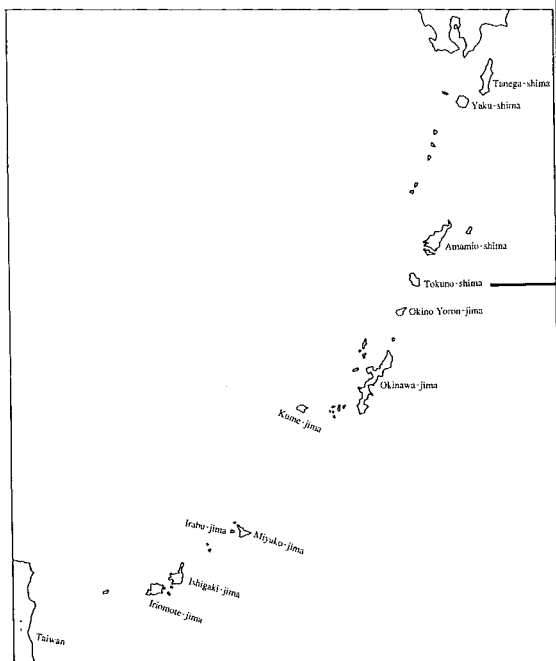
Fig.18 Departure of *Butastur indicus* in the morning from Miyako Islands

③ A New Concentration Locality : Tokunoshima Island

Tokunoshima Island is located about 420 kilometers south of Cape Sata. Since Tokunoshima was expected to be a concentration locality for migrating hawks, it was examined twice in 1987 (October 10-13 and October 18-21). The first step was to obtain information concerning the migration of *Butastur indicus* from the native people of Tokunoshima Island. This proved to be very difficult. However, enough information was obtained from some of the hunters to determine some of the concentration migratory points.

The point that the birds funnel through on their entrance and exit is at Isen-Cho, Tokunoshima Island. Here, the birds fly to the island from the southwest at 1700 and 1800 hours in the evening and leave around 0600 hours the next morning. This situation is very similar to the Miyako Islands. The points where many Gray-faced Buzzard Eagles come to the island are at Itokina, Agon, Yaezou, and Bane in Tokunoshima Island (Fig.19). At the basin of Yaezou, there is a low hill called Tairidu by the native people. Historically, it is said that this was where many Gray-faced Buzzard Eagles came into the island. In fact, the word "Tairidu" means the hill to shoot the hawks. Now, more than half of the hill has been destroyed and it has been turned into a sugarcane field. It is, however, still said that some hawks come through this area every year (photo.3).

Based upon the results examined by the author the following points can be assumed. Until today, it was thought that most of the *Butastur indicus* came into the Miyako Islands in a day at a point about 900 kilometers from Cape Sata. This seems impossible judging from the flight speed of *Butastur indicus*. A relay station between Cape Sata and the Miyako islands is necessary for this part of the journey. Judging from the distance, Tokunoshima Island was determined to be the relay station. The observed time when large flocks of *Butastur indicus* are noted at the Miyako Islands is from 1700 to 1800 hours. We have yet to recognize the major exit points between Tokunoshima Island and the Miyako Islands. The distance between Tokunoshima Island and the Miyako Islands is about 480 kilometers.



Phot.3 Flock of *Butastur indicus*

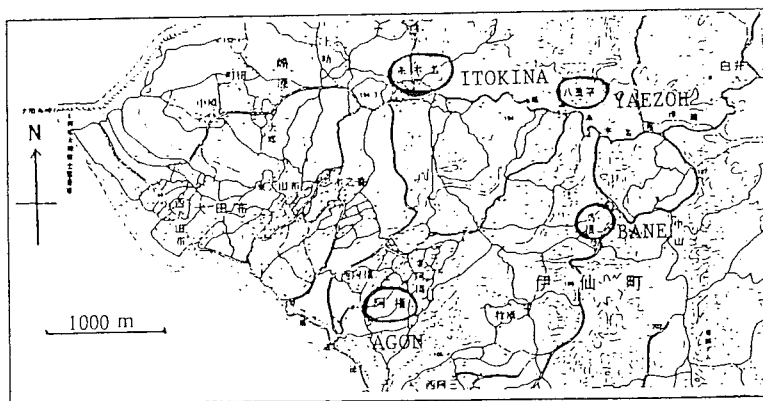


Fig.19 Map of Tokunoshima Island Showing New Location (Circled) of Overnight Concentration of *Butastur indicus*

④ Width of Migration Flights

How wide are the migration flights of *Butastur indicus*? In order to answer this, the author studied the following islands for three years (1981-1987): Tanegashima, Yakushima, Amamiyohshima, Kakeromajima, Tokunoshima, Okinawajima, Tokashikijima, Izenajima, Kumejima, Minamidaitoujima, Kitadaitoujima, the Miyako Islands, Ishigakijima, Iriomotejima and Yonagunijima.

During the migratory season, the hawks passed through the islands, making it possible to determine the wintering population of hawks. The study resulted in the recognition of wintering hawks at all of the islands except Minamidaitou Island and Kitadaitou Island. Around the central part of the southwest Islands, which forms an arched island chain in a north-south direction is Okinawa, the easternmost island where wintering hawks occur. The westernmost island is Kumejima Island. The islands' width is about 120 kilometers and corresponds to the distance of the migration (Fig.20).

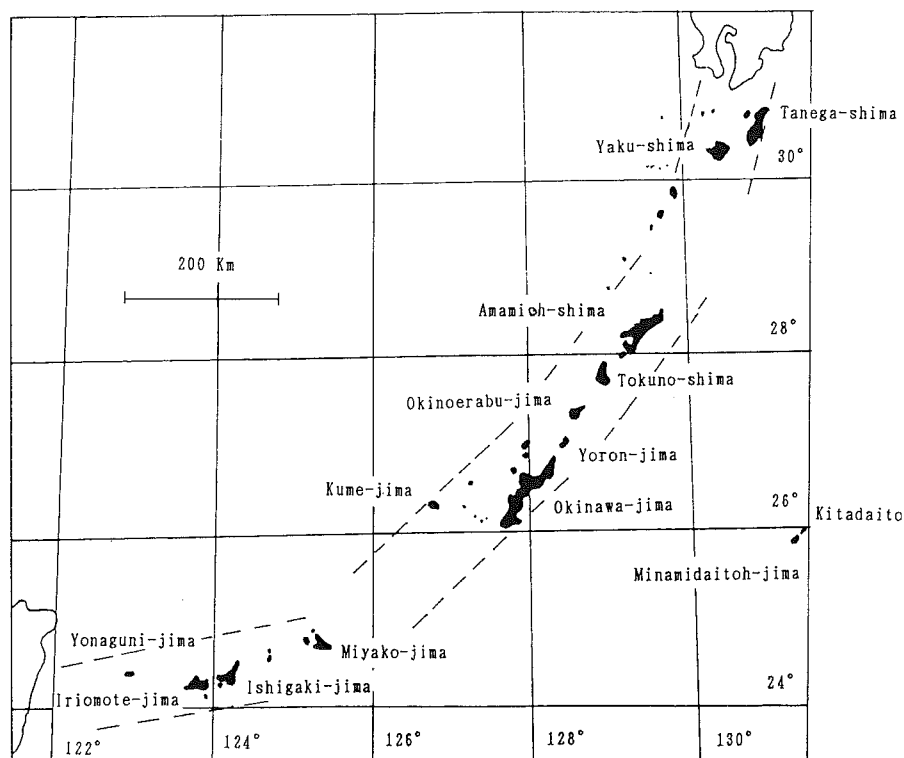


Fig.20 The Distribution of the Wintering *Butastur indicus* (Part of shadow) and the width of the Migration (dotted line)

Summary

After careful study of the migration of *Butastur indicus* from the breeding grounds in mainland Japan to the final wintering places in Southeast Asia, the following results were obtained (Fig.21, 22):

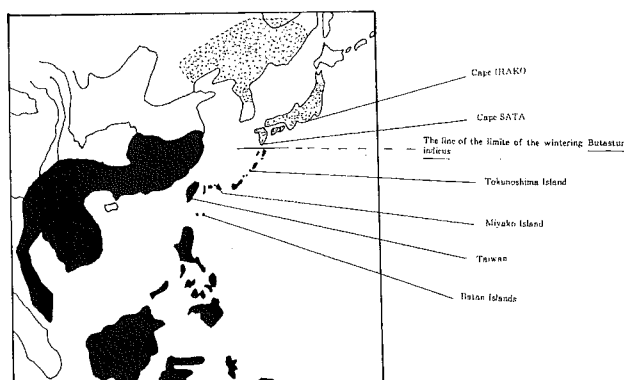


Fig.21 Breeding and Non-breeding Distribution of *Butastur indicus* and Concentrating Places During Migration (Wild Bird Society of Japan 1982. Modified)

Breeding
 NON-BREEDING

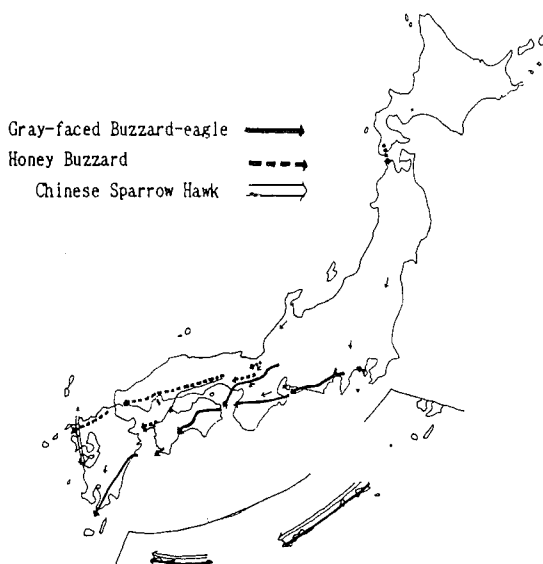


Fig.22 Main Migratory routes of the Gray-faced Buzzard-eagle, Honey Buzzard and Chinese Sparrow Hawk in Japan (Takeda, 1989)

- a) The hawks, which breed to the north of the Chubu districts of Japan, pass through Cape Irako, Aichi Prefecture, which is the first migratory concentration point. They join with the hawks which breed to the south of the Chubu districts and gather together at Cape Sata, Kagoshima Prefecture, which is the second concentration point.
- b) The southward simultaneous flight from Cape Sata, begins when the high atmospheric pressure of the continent is over the southwest islands and the wind changes to a northerly direction.
- c) Most of the hawks which fly away from Cape Sata roost at Tokunoshima Island, the third concentration point. Some of them roost at the Amami Islands or migrate to Okinoerabu or Yoron Island, and fly over Tokunoshima Island.
- d) The hawks that fly away from Tokunoshima Island roost at the Miyako Islands, the fourth concentration point. Some of them roost either at Okinawa Island or at the circumferential islands.
- e) The hawks which fly away from the Miyako Islands roost at Mansyugou, Taiwan, the fifth point of concentration.
- f) The hawks which fly away from Mansyugou roost on the Batan Islands of the Philippines, the sixth and final concentration point.
- g) The hawks flying away from the Batan Islands winter at the Philippines, Borneo, Java, West New Guinea, Tenasserim, Malaya, Thailand and Indochina.
- h) The migration period of these hawks occurs about two weeks before or after October 10th.
- i) The migratory peak of these hawks in the Southwest Islands is between October 12th and 18th.
- j) There are two or three peaks during one migratory season.
- k) The mean flight speed of the hawks is about 40 kilometers/hr and the mean flight distance in one day is approximately 400 kilometers.
- l) The hawks fly away in the morning at about 0600 hours and arrive at the next roosting place at about 1800 hours during the course of the day.
- m) The flight time of the hawks in one day is approximately 12 hours.
- n) The width of the migration is approximately 120 kilometers.

Acknowledgments

I wish to express hearty thanks to the Human Resources Development Foundation of Okinawa Prefectural Government for giving me the opportunity to study at the Smithsonian Institution. Also I am thankful to Dr. Hidetoshi Ohta, department of Biology, University of the Ryukyus, Dr. Kiyoshi Yamazato, Department of Biology, University of the Ryukyus, Dr. Sadao Ikehara, Honorary Professor, University of the Ryukyus and Mr. Kazuo Okamura, a principal of Miyako Senior High School for their kind advice and recommendations to the Smithsonian Institution.

I gratefully acknowledge Dr. Storrs Olson, Dr. Richard Zusi and Dr. Richard Bank, curators at the National Museum of Natural History, Smithsonian Institution, Mr. Charles A. Ross, Mr. J. Phillip Angle, Mr. Robert Phillips and Mrs. Carla Dove, museum support staff at National Museum of Natural History Smithsonian Institution and all other staff for their thoughtful criticism of this Research Report and kind help and for introducing me to the other Museum of Natural History.

I am especially appreciative to Mr. Charles A. Ross, Museum specialist, for allowing me to stay at his home for three months and Mrs. Carla Dove, museum technician and Ms. Michiko Shimabukuro, interpretation instructor, Okinawa Prefectural government, human resources development foundation language center, for their help in checking my English and Ms. Akiko Nishimura, Okinawa Prefectural Museum staff, for her help in drawing the maps.

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