

Black-faced Spoonbill



B LACK-FACED SPOONBILL

Platalea minor

WORLDWIDE STATUS: *Endangered*

CLASS: *Aves*

ORDER: *Ciconiiformes*

FAMILY: *Threskiornithidae*

SUBFAMILY: *Plataleinae*

OVERVIEW

Length: 27 – 29 inches (70-75 cm)

Weight: Unknown

Clutch size: 3-5 eggs

Incubation: 21-25 days

Diet: small fishes, crustaceans, insects, mollusks, occasional plant material

Habitat: Wetlands, particularly marine estuaries

Range: Spoonbills breed in North and South Korea and China, and migrate south to winter in Japan, Taiwan, Hong Kong, Vietnam, and the Philippines.

DESCRIPTION

Black-faced spoonbills are long-legged, long-necked wading birds that look like egrets. Their elegant feathers are snow white most of the year, but develop a shaggy, golden-yellow crest and breast patch in the summer breeding season. Their legs, feet and toes are jet black; faces are black and bare around the eye and across the forehead. Their black, elongated beaks gradually narrow, then abruptly flare out into a flattened disk with a nail at the tip.

Spoonbills feed in the water. They use their beaks to both dabble and sweep from side to side in big arcs as they walk. They consume a broad variety of foods but prefer small fish.

GENERAL INFORMATION

Black-faced spoonbills are the rarest, and least-studied, spoonbills in the world. They have a global population of around 800. The only known breeding colonies are on a few small, rocky islands off the coast of the demilitarized zone between North and South Korea and China. Due to military restrictions, these colonies are not accessible, so the black-faced spoonbill's breeding biology is largely unknown. There is also a small breeding ground in the adjacent province of Liaoning in China. Black-faced spoonbills nest on cliffs with gulls and other seabirds, despite the fact that these birds form a threat to spoonbill eggs and young.

The Wild Bird Society of Japan has sponsored satellite tracking of black-faced spoonbills from wintering areas in Taiwan and Hong Kong to determine migration routes and other nesting areas. Three of the major wintering sites are the Tsengwen River estuary of Taiwan, Deep Bay of Hong Kong, and the Red River Delta in Vietnam. The birds migrate along the coast of eastern China to northern Jiangsu, then over the Yellow Sea to the Korean peninsula. An annual count is held to monitor the population.

"The fate of the black-faced spoonbill will depend on increasing our understanding of the species' biology and on preservation of its wetland habitats. Only four of the fourteen sites used by wintering black-faced spoonbills are protected or are under some form of conservation management; each of those four sites is in China. The remaining ten sites have no formal conservation status. The ten unprotected sites are used by 81 percent of the world's black-faced spoonbills; thus, there is a serious threat to most of the world's black-faced spoonbill population."

MALCOLM C.

COULTER

Co-chairman, IUCN Specialist

Group on Storks, Ibises, and

Spoonbills

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A Lesson in Grassroots Activism

STUDENTS AT THE UNIVERSITY OF California, Berkeley (Cal) and National Taiwan University (NTU) are working together to save critical habitat for the black-faced spoonbill in Taiwan. Cal students work in the Department of Landscape Architecture and Environmental Planning, led by Professor Randy Hester. In Taiwan, NTU students attend the Building and Planning Research

Foundation under the guidance of Professor John Liu. Together they formed SAVE International, a non-profit organization devoted to protecting the black-faced spoonbill and the habitat it needs to survive.

Hester and Liu are long-time colleagues, having met while Liu was working on his Ph.D. in Berkeley. In 1997, Liu took Hester to the Tsengwen River estuary to discuss a land subsidence problem caused by groundwater leaching. They met with a group of local fishermen who were concerned about

Binnan, a proposed industrial complex in their area. The fishermen estimated that 7,000 marine jobs would be lost, the ecosystem would be ruined, and temperature changes and pollution due to runoff from the factories and subsequent land development would threaten their prized oyster beds, the largest in Taiwan.

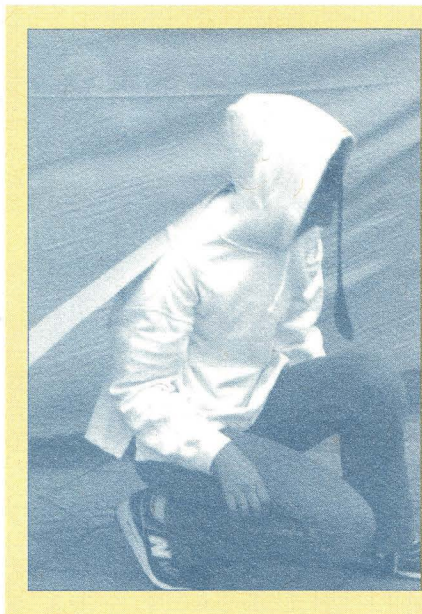
The fishermen asked Hester and Liu to look into the problem. Many of them shared their life stories. One fisherman had been sold away as a child because his family was so poor. It took twenty-five years for him to earn enough money to return, and he is now in danger of losing his home and his livelihood.

Students at Cal and NTU are encouraged to devise solutions for real-life problems. "Let students help communities that need it," is the motto. Both institutions motivate students to be involved in the real world, doing projects to help the quality of life in their communities.

Hester and Liu's classes examined the conservation biology needed to save the lagoon and come up with an alternative plan to the proposed Binnan complex. Their studies culminated in conferences held in Taiwan at which scientists and planners from both countries joined the students and faculty from Berkeley and NTU. After the conference, Dr. Malcolm Coulter, one of the world's foremost spoonbill experts, returned to Berkeley to help students examine the needs of the birds in Chiku. In the process, they discovered that the Environmental Impact Assessment (EIA) developed for Binnan had a fatal flaw: spoonbills feed at night and roost during the day. The EIA only took into account the spoonbill's daytime range, which is quite small. At night, the birds forage quite far. Clearly, black-faced spoonbills needed to be studied at night.

After thorough scientific study, SAVE realized that an industrial complex in Chiku Lagoon was incompatible with the survival of the spoonbills and the protection of the water for the livelihoods of the fishermen. Mediation could not resolve this issue. The development had to be stopped.

The students modeled alternative land uses for the region using computer mapping. None were compatible with Binnan and its future development. While Berkeley students approached the issue from an environmental science perspective, Taiwanese students analyzed the local politics. After Magistrate Su Huan-Chi saw the information, he arranged a congressional



While serious about the research, visits between Cal and NTU students often involve a little spontaneity.

hearing where Liu, Hester, Coulter, and a group of students presented their findings to the Taiwan legislature.

Environmental planning and landscape architecture students continue to probe and investigate the problems and opportunities surrounding the situation in Chiku. They create case studies and present them to Taiwanese government officials, working with the NTU students and faculty. Leading scientists are also involved, studying the black-faced spoonbill and the local economy.

Each October, students at Cal host a "Great Spoonbill Migration." Physical representations of black-faced spoonbills and the challenges facing them are erected on campus. When NTU students held a press conference about the birds, the Berkeley models were flown to Taipei, creating wonderful images for Taiwanese television cameras and newspaper reporters.

Although Cal students approach this issue academically, Taiwanese students are motivated to political action. They grew up—as did many of their professors—under martial law and now are adept at protests and high profile press conferences. During a visit from Berkeley SAVE members, NTU and Cal students donned black-faced spoonbill masks and staged an impromptu dance as a protest at the Taipei train station.

Public sentiment is starting to build for the spoonbills. Taiwanese students even convinced a local rock star to produce a CD featuring a track entitled, "Song of the Spoonbill." In 2000, Taiwan named the black-faced spoonbill its Millennium Bird, and its image now appears on Taiwanese passports.

Flyway Threats and Opportunities

THREATS

Habitat destruction is the biggest threat facing black-faced spoonbills. Their wintering grounds are threatened by industrial development in Taiwan. China's economic development has converted many coastal wetlands into industrial estates. Land reclamation is a problem in South Korea and Japan. Pollution is a major issue for birds wintering in Hong Kong. Increasing levels of disturbance and habitat destruction are challenges in China and Vietnam.

Many wintering and breeding sites along the flyway of the black-faced spoonbill are not protected, including sites that face pressure from urbanization, pollution, and coastal erosion. The spoonbill is in imminent danger of losing its wintering habitat in Taiwan. The Saemankeum Project in South Korea threatens mudflats near major breeding sites. Dam building in Japan has already destroyed spoonbill habitat.

OPPORTUNITIES

The range of summer and winter habitats forms an international flyway that extends over North and South Korea, Japan, Taiwan, China, Vietnam, and the Philippines. Those sites most threatened by development or other land use should be earmarked for conservation efforts and wildlife management. Better networking and sharing of information among countries is needed. There should be an international effort to identify spoonbill breeding and wintering sites, and assist in their preservation.

Areas on the Chinese coast and North Korea are largely unstudied. Surveys of these areas would help scientists better understand migration patterns and identify breeding sites.

Having had great success in fighting development proposals in Taiwan, SAVE recognizes the need to protect the entire international flyway to ensure the

survival of this rare bird. SAVE is building a coalition of environmental groups, students, universities and other organizations to preserve important spoonbill habitat sites, protect the flyway, and ensure the long-term survival of the black-faced spoonbill.

CONSERVATION

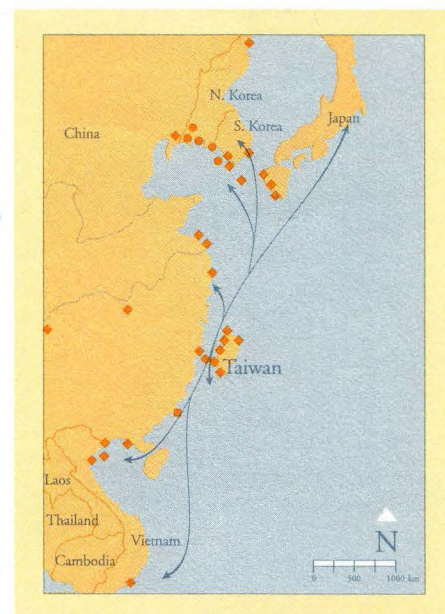
Black-faced spoonbills are legally protected in China (including Hong Kong), Taiwan, North Korea, South Korea, and Japan. Breeding sites in North Korea are designated as seabird sanctuaries, and sites in China have been declared as non-hunting areas. Protected wintering sites include Mai Po and Inner Deep Bay in Hong Kong, Xuan Thuy and Tien Hai in Vietnam, and Manko in Japan. China recently protected fourteen more wetlands that are "of utmost importance" as defined by Ramsar. These are very important to the black-faced spoonbill, and include Yancheng National Nature Reserve, Jiangsu Dongtan Nature Reserve, Guangxi, and many more.

In 2001, a Hong Kong court rejected a planned railway development in the wetlands of the Long Valley and Deep Bay operated by the Kowloon Canton Railway Company. The black-faced spoonbill uses these wetlands as a feeding and rest area, en route to Taiwan and Vietnam. Future generations in China will enjoy the remarkable biodiversity of these wetlands, which harbor a variety of plants and birds such as the yellow bunting and painted snipe.

The future of the black-faced spoonbill in Korea is, however, in doubt. Most of the bird's critical breeding areas are in or near the Demilitarized Zone, which encompasses an expansive but fragile system of mudflats and islands. Major land reclamation work and the new Incheon airport pose major threats to the spoonbill in Korea.

Confirmed wintering sites

Confirmed breeding sites



Recognizing that spoonbills do not live in Taiwan alone, SAVE is working with others to organize an international network of groups along the flyway to protect important habitat sites.

WHAT IS THE BLACK-FACED spoonbill?

The black-faced spoonbill (*Platalea minor*) is a large, egret-like wading bird. It has a long black spatulate bill and black face mask, legs, and feet. During the breeding season, it sports a bright yellow crest and breast patch.

How endangered is it?

Very. There are only about 800 black-faced spoonbills left in the world. More than half of them migrate to the Chiku Lagoon on the Tsengwen River estuary in southwestern Taiwan. Planned industrial development threatens this critical habitat and would lead to the bird's extinction.

Where does it breed and migrate?

The black-faced spoonbill lives and migrates in Asia, primarily North and South Korea, Japan, Taiwan, coastal China, the Philippines, and Vietnam.

What is happening to its wintering grounds in Taiwan?

A proposed petrochemical and steel factory, known as the Binnan Complex, would be built on Chiku Lagoon and remove 4280 acres (1732 hectares) critical to the survival of the spoonbill and the 200 other bird species in the estuary. More than 90 percent of the wetland and fishpond habitat essential for spoonbill survival would be subdivided by freeways, roads and secondary land uses.

Is this area an internationally protected wetland?

No. But Chiku Lagoon in the Tsengwen River estuary and its associated marshes and fishponds in coastal Tainan County qualify as "wetlands of utmost importance" as defined by the scientific criteria established at the Ramsar Convention, the international accord developed to protect wetlands. Presently excluded from the United Nations and therefore unable to join Ramsar, Taiwan has sought international recognition through improved environmental policies. Approving the Binnan project, however, undermines any potential for wise use of these wetlands.

What is happening along its migration route?

Many of the wintering and breeding sites along the flyway of the black-faced spoonbill are not protected. These sites face pressure from urbanization, pollution, coastal erosion, and more. The spoonbill is in

imminent danger of losing its wintering habitat in Taiwan, and the Saemankeum Project in South Korea threatens mudflats near major breeding sites. The sites faced with human-caused destruction should take highest priority. SAVE and other defenders of the spoonbill are spearheading an international effort to identify all sites where spoonbills breed and winter, and to rank the threats to those sites.

What is the relationship between tourism in Taiwan and the black-faced spoonbill?

Tourism accounts for only 1 percent of Taiwan's economy, compared to 11 percent worldwide, but offers great potential for creating new jobs and promoting international understanding. Residents of Tainan County are already using their own resources to capitalize on the presence of the black-faced spoonbill and the rich assortment of birds and wildlife in Chiku Lagoon. Entrepreneurs are actively developing an eco-tourism industry that attracts hundreds of thousands of visitors each year. The area's natural resources, under threat by the Binnan complex, are essential ingredients to a strong tourist economy.

What can the Taiwanese government do to stop the destruction of the spoonbill's habitat?

The Taiwanese government can stop the development of the proposed petrochemical and steel complex, highways, dams, and other industrial plans. It can formally protect the wetlands of the Tsengwen River estuary and help local people develop a sustainable plan for tourism and fishing.

Are there alternatives to building a petrochemical plant on Chiku Lagoon?

In 1999, researchers at the University of California, Berkeley and National Taiwan University prepared a report using the most current scientific research that proposed viable alternatives. The report, "The Future of Coastal Tainan County," covers in detail the assets and threats, alternative proposals, environmental stewardship, and economic development of southwest Taiwan. It also suggests how the government and the community can save the land. Already, a thriving fishing and tourism industry are galvanizing residents and stimulating the local economy. More than 90 percent of Taiwan's residents report that poor environmental conditions are reducing their quality of life. Many people who live in coastal Tainan County are concerned that the industrial complex will ruin the natural assets of this region: the beautiful beaches, forests,

*"I can't bear to think,
when I wake up every
morning, that the blue
skies, salt mountains
and flocks of water-
birds might be replaced
by dozens of smoke-
stacks and burning
torches. "*

MAGISTRATE SU
HUAN-CHI

試想、當清晨起來、
藍天、鹽山、水鳥
群飛

mangrove plantations and sand dunes. Fishermen worry about losing their way of life to water pollution.

How much land needs to be protected to ensure the survival of the black-faced spoonbill?

SAVE International proposes the establishment of a small national scenic area to protect the spoonbill roosting and foraging site. Zones of protection would be created to provide habitat for a sustainable population of 3,000 to 5,000 black-faced spoonbills worldwide. A second roosting site and the equivalent of 6500 acres (2631 hectares) in fishponds need to be preserved as well. The plan calls for maintaining and strengthening existing agricultural zoning to support the fishing industry and the families that depend on it.

What is so special about Chiku Lagoon and the Tsengwen River estuary?

More than half the world's population of black-faced spoonbills spends the winter at Chiku Lagoon. Nineteen bird species recorded at the estuary are listed as rare or endangered. It is one of the few places in the world that regularly supports wintering Saunders's gulls, another extremely rare bird. The lagoon's diverse wildlife habitat is a rich source of food and economic stability for local fishermen and an major attraction for birders and tourists from around the world.

Because the spoonbill feeds at night in only six inches (15 cm) of water, only a handful of sites in the world are suitable winter habitat. Many coastal wetlands in China and along the bird's migration route in North and South Korea, Japan, and Vietnam have been destroyed or damaged by industrial and agricultural development, leaving Chiku Lagoon as a vital part of the black-faced spoonbill's safety net.

Does Taiwan's land-use plan for Chiku Lagoon address environmental concerns?

No. The Environmental Impact Assessment (EIA) prepared for the proposed Binnan complex contains serious flaws. Spoonbills forage over an extensive area at night and roost during the day; the EIA only took into account their small daytime range. Black-faced spoonbills need to be studied at night. Chiku's black-faced spoonbills feed in the area where the industrial complex site is proposed.

What is SAVE doing to prevent this?

SAVE is actively working to persuade the Taiwanese government to stop Binnan and save the black-faced spoonbill. SAVE also provides scientific expertise and reviews EIAs. SAVE inspires community participation, develops sustainable alternatives, and garners political support from legislators and officials. In the future, SAVE will develop new partners along the flyway, evaluate their EIAs, develop alternative plans, and educate the media.

What can people in the U.S. do to help save this bird?

Join SAVE. For more information, contact

SAVE International
c/o Dept. of Landscape Architecture &
Environmental Planning
202 Wurster Hall, University of California
Berkeley, CA 94720
Telephone (510) 642-7722
www.earthisland.org/save

Write letters opposing the Binnan project to:

President Chen Shui-Bian
No. 122, Section 1
Chung-chin S. Road
Taipei, Taiwan, R.O.C.

Dr. Hau Lung-Bing
Environmental Protection Administration Director
No. 41, Section 1
Chung-Hwa Road
Taipei, Taiwan, R.O.C.

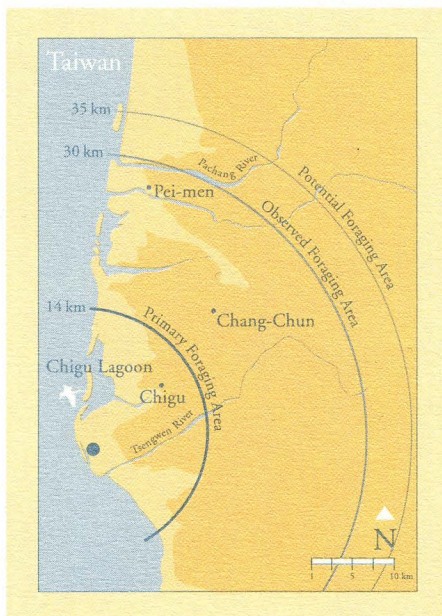
Make a donation to SAVE, and Working Assets and GiveFor Change will match your donation. Donations can be made online through the Earth Island website at www.earthisland.org/join/giveforchange-offer.html. All donations are tax-deductible.

PLAN A TRIP TO CHIKU LAGOON!

Overview: Black-Faced Spoonbill Faces Extinction



BLACK-FACED SPOONBILLS are one of the rarest and most endangered birds in the world. Large, egret-like waders, these spoonbills breed on small, rocky islands off the coast of North Korea, South Korea and China. Due to military restrictions, the colonies are not accessible and their breeding biology is largely unknown.



The wetlands within 14 km of the spoonbill roosting area are most critical for their foraging. They should be designated as core habitat and protected. Spoonbills have been observed foraging up to 30 km and probably forage for at least 35 km from their roosting site. These lands should be managed for both fish farming and spoonbill habitat.

While some migrating birds simply stop to rest and feed before continuing their long journey, more than half the world's population of black-faced spoonbills spend the winter at Chiku Lagoon in Taiwan. More than two hundred bird species have been sighted at Chiku; nineteen are listed as rare or endangered.

Because of the spoonbill's specialized feeding requirements in winter, only a handful of sites in the world are suitable habitat. Many coastal wetlands in China and along the bird's route in North and South Korea, Japan, and Vietnam have already been destroyed or damaged by industrial and agricultural development, making the preservation of Chiku and the remaining habitat along the flyway even more important.

Black-faced spoonbills migrate south from North Korea. Their flyway extends through South Korea, Japan, Taiwan, coastal China, the Philippines and Vietnam. The latest census estimates that only about 800 black-faced spoonbills are left in the world.

Black-faced spoonbills suffer most from loss of habitat. The wetlands of Taiwan are essential wintering sites along their migratory flyway.

The Taiwanese government is promoting plans to build a petrochemical and steel complex that will destroy this habitat, a move that will likely doom the black-faced spoonbill to extinction. The 4280-acre (1732 hectares) Binnan complex would be built directly on Chiku Lagoon, in areas needed by the spoonbills for foraging and roosting.

Founded in 1997, SAVE International is a volunteer group of professors, students and staff from the University of California, Berkeley and National Taiwan University. SAVE works directly with fishermen, residents, legislators and other concerned organizations and individuals to protect the black-faced spoonbill and its most important wintering site, Chiku Lagoon.

A project of Earth Island Institute, SAVE has produced a vast amount of scholarship, including a three year study that details, based on scientific evidence, the disastrous impact that the proposed industrial complex and related development will have on Chiku. It proposes an alternative plan that would protect the traditional jobs of the residents and preserve enough viable habitat to ensure the survival of the spoonbills and other species. Copies of this plan are available through SAVE International. SAVE's plan includes the development of eco-tourism, which is already benefiting Chiku. Through promotion by local organizations and constant media attention, the black-faced spoonbill is now one of the most recognized birds in Taiwan. Last year, more than 1.5 million tourists came to watch the bird during its winter stopover in Taiwan.

Black-faced spoonbills face similar threats along their migratory flyway. SAVE hopes to create community partnerships in these countries to ensure the long-term protection of the species.

spoonbill@uclink4.berkeley.edu

FOUNDED IN 1997, SAVE International is a volunteer group of professors, students, and staff from the University of California, Berkeley and National Taiwan University. SAVE's mission is to save the endangered black-faced spoonbill from extinction by protecting the Tsengwen Estuary in Taiwan, the bird's most important wintering site. SAVE (Spoonbill Action Voluntary Echo) is a project of Earth Island Institute. Its members include concerned citizens around the world.

SAVE has enlisted the assistance of grassroots environmental groups, fishermen, environmentalists and important legislators in Taiwan in their cause. From bake sales in Berkeley to top-level governmental meetings in Taiwan, this small, but very active, group has had extraordinary success in affecting key decisions that impact the fate of the black-faced spoonbill.

INTERNATIONAL ADVISORY COMMITTEE

Dr. Y.T. Lee, Chair, Nobel Laureate, Taiwan

Dr. John Byrne, University of Delaware

Dr. Shenglin Chang, University of Maryland

*Dr. Li-Yang Chang, Lawrence Berkeley National
Laboratory*

*Dr. Malcolm C. Coulter, IUCN Specialist Group on Storks,
Ibises and Spoonbills, New Hampshire*

Tom Dahmer, Ecosystems, Ltd., Hong Kong

Randolph T. Hester, University of California, Berkeley

Dr. Chu-Joe Hsia, National Taiwan University

Dr. Keelung Hong, California Pacific Medical Center

Dr. Jeffrey Hou, University of Washington, Seattle

Dr. G. Mathias Kondolf, University of California, Berkeley

Dr. John K. C. Liu, National Taiwan University

*Marcia McNally, Community Development by Design,
Berkeley*

Dr. Deborah Savage, Tellus Institute, Boston

ENDORSEMENTS

"SAVE International's work to help protect the endangered black-faced spoonbill provides a wonderful model for the future of ecological preservation. This rare bird appeared to be a lost species until SAVE intervened with a strategy that combines scholarly research, innovative planning, grassroots economic development, and political action. SAVE challenges the prevailing scientific beliefs about spoonbill habitat needs through a systematic synthesis of research from seemingly unrelated disciplines. Were it not for SAVE's work, and its ability to work with many groups, the spoonbill would certainly be headed for extinction.

Most important to imperiled species everywhere is the fundamental lesson SAVE teaches by example. They have successfully integrated conservation science and local people's needs in a singularly creative way. SAVE's commitment to protecting the black-faced spoonbills, and the rich wetlands that are their home, is an inspiration."

JANE GOODALL, PH.D., CBE

Internationally renowned primatologist and founder of the Jane Goodall Institute

"SAVE International provides an invaluable opportunity for our students to make a real difference in communities, both here in our region and, spanning two continents, in Taiwan. Students present their research, not only to faculty, but also to fishermen, residents and legislators. The real-life impact of their work is tangible and inspiring."

HARRISON S. FRAKER, JR., FAIA

Dean, College of Environmental Design, UC Berkeley

AWARDS

2000 University and Community Chancellor's Award

The award commends those from the University of California, Berkeley and the local community whose joint efforts provide educational, cultural, science, and health resources to enhance the quality of life for local residents. "Save International has expanded our definition of 'community' partnership to encompass our global community."

IRENE HEGARTY

Director of Community Relations, UC Berkeley

2001 "Little Engine That Could Award" from GoodThings Inc., Seattle

SAVE International was formally recognized as the Favorite "Little Engine That Could" honoree in GoodThings, an international e-magazine.

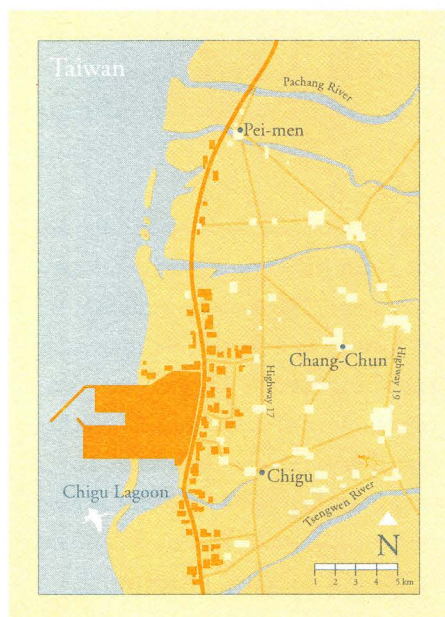
"In 1997, the plight of an odd-looking endangered bird—the black-faced spoonbill—garnered the attention of a small group of students and faculty from the University of California at Berkeley. Its wintering wetland habitat in southwestern Taiwan threatened by plans for development of a major petrochemical plant; the spoonbill became the inspiration for a new grassroots organization, SAVE International. SAVE confirms late anthropologist Margaret Mead's prescient words: 'Never doubt that a small group of thoughtful, committed citizens can change the world.'"

GOODTHINGS INC. WEBSITE

Chiku Lagoon: Last Chance for the Black-Faced Spoonbill

THE ISLAND OF TAIWAN lies about 100 miles (160 km) off the southeast coast of mainland China. It is slightly smaller than the states of Maryland and Delaware combined, about 210 miles (336 km) long and 90 miles (144 km) across at its widest point, with a tropical, marine climate. Rugged mountains dominate the eastern two-thirds of the island, subsiding into flat or gently rolling plains in the west.

Existing Urban Area
Proposed Urbanization



The Binnan industrial complex and associated growth will destroy most of the critical wetlands necessary for spoonbill foraging.

Black-faced spoonbills feed over a large range at night, in only six inches (15 cm) of water. Because of these specialized feeding requirements, only a handful of sites in the world are suitable habitat. Chiku is a critical component of the black-faced spoonbill's survival.

Chiku Lagoon faces these threats from current and proposed development:

Binnan Industrial Complex – Petrochemical Complex Number 7, also known as the Binnan Project, would fill a 4280-acre (1732 hectare) site in the north end of the lagoon. It would include a naphtha cracker (used in the processing of petrochemicals), a steel mill, an industrial port and an oil refinery. Located

near the main roosting site of the spoonbills, the project proposes to fill nearly one third of Chiku Lagoon. Wastewater discharge and air pollution from the complex, as well as industrial and urban development, present a critical threat to black-faced spoonbill habitat.

High CO₂ Levels – The Binnan complex would emit 20.5 million tons of CO₂ annually, equivalent to 18 percent of Taiwan's 1990 CO₂ emissions levels. The proposed municipal incinerator of Tainan County would lie less than 225 yards (206 meters) from the main foraging area.

Water Shortage – Construction of the proposed Meinung Dam, required to divert water to the proposed industrial complex, would divert massive amounts of water. This will reduce flows in rivers downstream, flood two aboriginal villages and important ecosystems upstream, reduce groundwater recharge of several rivers in southern Taiwan, and increase seismic risk in the area. Increased water salinity, temperature changes caused by industry, and pollution would significantly damage the Chiku fishery, which now generates NT \$4.6 billion annually and employs 16,000 people.

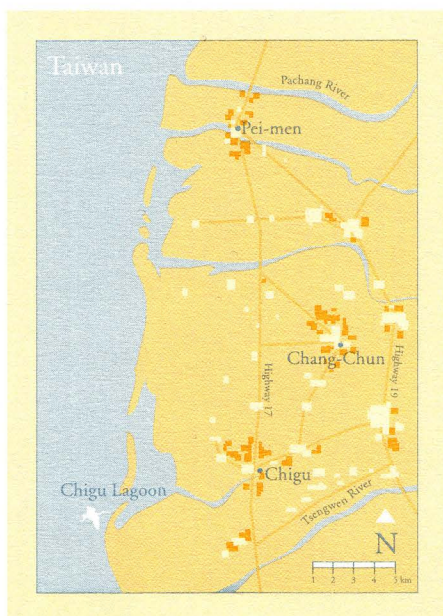
Development & Urbanization – The recent construction of a science park in nearby Sitsao has resulted in the loss of salt ponds and fishponds, preventing the spoonbills and other birds from visiting the area. More urbanization as a result of industrial and road development will cut into critical foraging habitat.

Highway and Road Building – Now under construction, the West Coast Highway will cut across the lagoon, dividing and destroying critical foraging habitat. Traffic and noise pollution from the highway will disrupt the activities of the birds.

No Protection – Black-faced spoonbills are listed as endangered species in Taiwan. Only the core roosting area is proposed for protection.

The harm from Binnan will not stop at Chiku. Air pollution caused by the petrochemical refinery could affect crops in the entire coastal Tainan County, one of the few remaining agricultural regions in the country. An endangered yellow butterfly would also be threatened.

Existing Urban Area
Proposed Urbanization



The alternative plan based on fishing, green industries, and eco-tourism provides for significant growth within existing towns and villages while protecting the most critical spoonbill habitat.

tourists come to Chiku to see the birds and the scenery on weekends and holidays. Local restaurants serve as eco-education centers; souvenir and binocular vendors crowd the bird-watching stations. Local fishermen take tourists by boat to see Chiku Lagoon and its barrier islands. Community organizations train tour guides, conduct research on the habitat of black-faced spoonbills, and study the impact of tourism. Last year, more 1.5 million people came to watch the bird during its winter stopover.

Despite Chiku's beauty and the fact that it has become a major draw for tourists, the current

SAVE International has prepared an economic development plan for coastal Tainan County featuring eco-tourism and green industry. It is estimated that investment in tourism infrastructure would generate NT\$14 billion and more than 30,000 jobs, comparable to the proposed Binnan complex. The plan has been so popular that eco-tourism is already booming in Chiku. Through promotion by local organizations and constant media attention, the black-faced spoonbill is one of the most recognized birds in Taiwan. Busloads of

proposed boundary for a Wildlife Protection Area fails to include the primary foraging habitat for black-faced spoonbills and other species.

Taiwanese Vice President Annette Lu believes that citizens are duty-bound to protect the spoonbill. "Tainan County is a marvelous place with a very special natural environment," Lu said in a recent press conference, adding that many of the county's ecological features, particularly the extraordinary maritime ecological scenery in Chiku, deserve protection.

Biologist Vicki Friesen, of Queen's University in Ontario, Canada, anticipates that the black-faced spoonbill will become extinct if the Binnan complex is built. Friesen states that "none of the potential effects are hypothetical – all have been observed in other areas – and few are included in environmental impact assessments."

Chiku fishermen have strongly opposed the Binnan project proposal. Chen Jia Wong, a local fisherman, speaks for his colleagues. "We know how to fish; we don't know how to work in a factory. We can support ourselves without this oil plant." The fishermen resent the media depiction of the area as poor fishing villages in desperate need of jobs. Another fisherman, Liu Sing-Tsia, counters that they don't need jobs as much as they need clean air and water. Says Uncle Au-Long, "We prefer this life. It is not about prosperity."

To have difficulty, or go through a difficult period of life, is expressed in Taiwanese as *chiku*, or to "eat bitterness." Local fishermen, many of whom have already faced great challenges in their lives, are worried that they will have to *chiku* when faced with the prospect of Binnan and other industrial development.

"There can be no doubt that the high-quality habitats at the Tsengwen River estuary are critical to the global survival of the black-faced spoonbill."

TOM DAHMER & MARY FELLE

Wildlife biologist and director, Ecosystems, Ltd. Hong Kong

International Coalition to Save the Black-Faced Spoonbill

CONTACT SAVE INTERNATIONAL in the United States and Taiwan at the addresses below, or visit our website at www.earthisland.org/save.

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The following organizations and individuals are among those who have endorsed SAVE International's campaign to save the black-faced spoonbill. For a complete list, visit SAVE's website at www.earthisland.org/save.

American Bird Conservancy
Black Hills Audubon Society, Washington
Chinese American Environmental Protection
Association, New York
Colonial Waterbird Society
Colorado Bird Observatory
Earthfirst! Journal
Geografica, Portugal
Gray's Harbor Audubon Society, Washington
Green Delaware
Green Korea United
Humane Society of the United States
Humane Society International
International Crane Foundation

International Rivers Network
International Wildlife Coalition
Donald Kennedy, President Emeritus and Bing Professor
of Environmental Studies, Stanford University
Leavenworth Audubon Adopt-a-Forest, Washington
Linnaean Society of New York
Maine Audubon Society
Marine Endeavors
National Audubon Society
National Park Association of New South Wales,
Australia
Natural History Museum of Los Angeles County
New Jersey Audubon Society
North American Engineering Association
Dr. Mitchell Northcott, New College, University of
Edinburgh, Scotland
Pacific Environment and Resources Center
Pacific Seabird Group
Rainforest Action Network
Rivers Council of Washington
Rocky Mountain Institute
Salmon Protection and Watershed Network
Save San Francisco Bay Association
Sea Turtle Restoration Project
Sierra Biodiversity Institute
Sierra Club
Spokane Audubon Society
Taiwanese Association of America
Taiwanese-Canadian Association
Urban Ecology
Vancouver Audubon Society
World Endangered Species Protection Association
World Nature Association

"Taiwan is a beautiful piece of the earth. It needs to be taken care of. Its rivers need to be protected, not dammed and filled with sediments. We can do something about the future. We can't do much about the past except enjoy some of the parts and regret other parts. But we can make sure that we give a break to the future."

DAVID BROWER
Conservationist and founder of
Earth Island Institute

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