MASS TOURISM VS. ECOTOURISM

1. Tourism is one of the world's largest industries, making up more than 10% of the global economy, and an important economic resource for most nations.

2. In Taiwan, however, less than 4% of the economy is based in tourism, making it a great unexplored potential resource.

3. In Taiwan, most investment goes toward *mass tourism*, which often exploits resources without preserving them. This can degrade the very resources that attract visitors in the first place.

4. By contrast, *ecotourism* emphasizes nature and culture and can sustain tourism in the region in the long run while contributing to the protection and conservation of the environment.

5. Ecotourism is also one of the fastest-growing segments of the economy and has potential to attract international visitors, thereby expanding markets and revenue.

6. With their rich ecological resources, traditional agricultural heritage, and historic and religious events, the Yunchianan National Scenic Area (NSA) could readily develop ecology- and culture-based tourism that would appeal to domestic and international ecotourists.

PRINCIPLES OF ECOTOURISM

1. PRESERVATION OF NATURE AND LOCAL CULTURE

o Ecotourists will want to experience multiple aspects of local ecology and culture in addition to large attractions such as the black-faced spoonbill.

o These experiences should be environmentally friendly. For example, walking, biking, and boating should be prioritized over tour buses.

Implications for the Yunchianan NSA:

1a. The most important action to be taken is preserving habitat for the black-faced spoonbill and other species; otherwise, ecotourists will not come.

1b. Although infrastructure projects are built in order to facilitate tourism to see the birds, investment must be placed in habitat protection.

1c. National priorities must be given to habitat preservation, and the management authority must engage local people in science-based resource protection (*see the* ***Yunchianan National Scenic Area and Habitat Protection*** *sheet for more information*).

1d. Additionally, to preserve nature and local culture, alternative transportation methods must be developed as the primary transportation infrastructure: methods such as the ferry, locally known as the *blueway*, as well as biking and walking trails. These alternative methods of transportation offer development opportunities that contribute to habitat protection. Tour buses degrade the air quality and require larger roads, which destroy the intimate local character of the area and fragment habitat.

2. UNSPOILED LANDSCAPE

o Ecotourists want an unspoiled natural landscape. Insensitive tourist facilities or development, even if viewed at a distance, can have adverse visual impacts.

Implications for the Yunchianan NSA:

2a. Large natural areas need to be preserved for wildlife habitat and to provide the setting that ecotourists demand.

2b. Tourist facilities near these natural areas should be sensitively designed and be hidden by native vegetation at the edges so that the natural setting is not obscured.

2c. These facilities should be built on previously damaged land or on the most degraded habitat so as to minimize loss to viable habitat. Creative reuse of materials and existing structures should also take place and new materials should be of local origin, keeping investments in the community.

2d. Structures should be easy to build by low-skilled labor, and sit on hand-dug footings. They should be light, open, and oriented toward views, and should showcase sustainable technology such as solar power use.

2e. Heavy construction equipment should be avoided, instead relying on specialized heavy equipment that can work from roads to avoid site disturbance. The landscape should be restored following construction.

2f. Urban development must be clustered in and around existing cities, towns and villages. Buildings should be low to the ground, none higher than the local temple to maintain the dramatic flatness of the region. Tall buildings should only be constructed in existing cities; none should be allowed near the natural areas or in the open viewsheds.

2g. Design guidelines regulating the location of and type of development should be created to guarantee that the unspoiled landscape is maintained. In Tainan County, to protect the area's overall aesthetic, development including tourism services should be limited to existing villages and areas east of Highway 17. This restriction would ensure that future development be concentrated in existing cities, preserving the pristine views of the wetlands.

3. UNIQUE CHARACTER

o Ecotourists from abroad will come to experience Chinese history such as Chinese courtyard houses, temples, quaint villages, and narrow roads. They want to see what is distinctive and are not interested in suburban sprawl and buildings that look like everywhere else.

o Taiwan is at an advantage in this regard, because so much of traditional Chinese architecture and culture has been destroyed on the Chinese mainland. In many cases, the best remaining traditional Chinese temples and houses are along the west coast villages of Taiwan.

Implications for the Yunchianan NSA:

3a. Preserve the unique Taiwanese character of architecture, villages, and the landscape through strict land-use plans, zoning laws, and design guidelines. Design guidelines required for new development will maintain the local aesthetic and character of existing architecture.

3b. Do not externally modernize too much because "old style" buildings can successfully be preserved and made available for tourist accommodations. Many old traditional buildings can be preserved to maintain the regional aesthetic, while interior renovations provide modern comforts.

4. KNOWLEDGEABLE HOSTS

o Ecotourists appreciate hosts and tour guides who can provide "inside" local information and details of the ecology, history and culture. They are demanding in this regard, but will also pay a premium for knowledgeable service.

Implications for the Yunchianan NSA:

4a. Train local people to be professional and knowledgeable about the local ecology and culture. Typically, colleges in the area take the lead in this training.

4b. Local people with local knowledge can obtain well-paying professional jobs doing the things they enjoy. Local fishermen, environmentalists, teachers, and photographers of the Yunchianan NSA are among the most engaging, passionate, and well-informed hosts anywhere.

5. "INSIDER" EVENTS

o Ecotourists want to experience things that other mass tourists do not get to see.

o Ecotourists are eager to actively participate in habitat restoration, local practices, and culture. They want to be part of everyday occurrences and learn firsthand what local people do.

o Ecotourists will pay to participate in active duties of local vocations. For example, visitors can help do the work of harvesting oysters, clams, and fish. For an additional fee, locals can instruct in preparing traditional dishes from the tourists' fresh catch, offering a distinctive educational experience that dually benefits the local economy.

Implications for the Yunchianan NSA:

5a. First, inventories of local festivals, authentic places, traditional work, and arts and crafts should be made to determine which ecotourists would want to experience from among these assets.

5b. Local individuals should be trained to prepare them for the jobs.

5c. Local companies should be formed to provide and manage these services so they are professional yet unique (*see the* ***Successful Ecotourism Management*** *sheet for more information*).

5d. Districts with historic architecture and village character should be preserved and repaired to create settings for clusters of the more permanent and place-dependent activities.

Successful Ecotourism Management

Management Guidelines for Taiwan's Yunchianan National Scenic Area

ESTABLISHING A LOCAL MANAGEMENT AUTHORITY

Communities around the world are turning to ecotourism as a means to protect their natural environment and traditional way of life while continuing to prosper economically. A key component of successful ecotourism is the establishment of a local management authority. Local management authorities oversee the long-term management of protected areas to ensure that the area provides adequate services for tourists without harming sensitive resources.

Development of the management authority is a critical step to ensuring successful management that will benefit the local community. The management authority should include a diverse array of representatives such as members of local communities groups, scientists, local businesses, tourism operators, politicians, and representatives from local and national agencies, including the Council of Agriculture and the Tourism Bureau.

FUNCTIONS OF THE MANAGEMENT AUTHORITY

The two most important functions of the management authority are these:

1. Establish planning guidelines such as zoning and regulations to protect national scenic area resources.

2. Generate economic development by establishing financing, training, and marketing initiatives.

NATIONAL SCENIC AREA ZONING

Protected areas are most successful when overlay zones are applied for different types of land use. Zoning for protected areas such as the Yunchianan National Scenic Area ensures that sensitive areas are protected and that tourism development and infrastructure are located in appropriate areas.

Zoning policies should ensure the following:

o Major tourism facilities are located in existing urban areas that do not contain sensitive environmental and cultural resources.

o Activities such as tourism, agriculture, or fisheries take place in less environmentally sensitive areas.

o Less sensitive areas with scenic resources are zoned to accommodate tourism facilities such as walking paths, bike routes, visitor centers, and food services.

o No tourism-related development is permitted in the most sensitive areas such as bird roosting and wading habitat.

Appropriate development guidelines and detailed regulations regarding the specific types of activities that may occur in each zone should be developed (*see the* ***Ecotourism Development and Design*** *sheet for more information on this topic*).

GENERATING LOCAL ECONOMIC DEVELOPMENT

The management authority plays an important role in generating local economic development by establishing programs for financing tourism infrastructure, training opportunities, incentives for local people, and marketing.

Financing. Financing plans are developed to establish or seek funding sources for new ecotourism facilities and infrastructure, land acquisition, research, ecological restoration projects, training programs, monitoring systems, and maintenance. Tourism fees or taxes are often used as a mechanism to establish long-term revenue for financing.

Training.Training programs for local people will ensure that economic benefits from tourism remain in the local community. Locals play an important role in tourism as they provide exceptional knowledge of the region, which creates a more authentic experience for ecotourists. Ecotourists appreciate hosts and tours that can provide "inside" local information and details of the local history, ecology, and culture. This is particularly true for international ecotourists that come to experience new culture. Food and crafts unique to the region also contribute to attracting both international and national ecotourists. The benefit to the community is the creation of well paying professional jobs for locals. These jobs can involve activities that local people enjoy such as fishing, boating, teaching and photography.

Case Study: Great Barrier Reef Marine Park Authority
Location: Queensland, Australia

The Great Barrier Reef Marine Park was established in 1975. At approximately 348,700 square kilometers, it is the largest marine protected area in the world. The Great Barrier Reef is a huge draw for tourists, with more than 1.5 million visitor-days per year and generating annual tourism revenues of US$530 million.

To manage this large and complex protected area, the state of Queensland established the Great Barrier Reef Marine Park Authority. Participants on the authority include native Australians and representatives from federal, state, and local governments.

The management authority has addressed issues such as fisheries, global biodiversity, water quality, coastal development, and shoreline recreation, and it provides planning and policy guidelines for the park.

Case Study: Belize, Central America

Belize, located at the base of the Yucatan Peninsula in Central America, has the second-largest coral reef system in the world, as well as many large reserves of mangroves and rainforests.

In Belize, leading environmental groups, independent resort operators, and the Belize government have joined together to develop strategies to promote conservation through ecotourism.

This collaboration, called Belize's Protected Areas Conservation Trust ("PACT") has devised an innovative way of raising additional funds for the conservation and management of protected areas.

The PACT established a "conservation fee" charged to all foreign tourists when leaving the country. Based on the current figure of 140,000 foreign tourists each year, the US$3.75 fee raises more than US$500,000 annually for conservation efforts. Activities to be funded by the PACT include:

1. *Training*
2. *Environmental education and awareness activities*
3. *Policy studies and consultations*
4. *Research*
5. *Protected area management planning*
6. *Institutional support for public-sector agencies and NGOs*
7. *Evaluation of resource management activities*
8. *Loans to conservation or ecotourism ventures, including starting a tour-guide operation and assistance to private reserves*

Incentives for Local Businesses. Incentives should be created to encourage businesses that are ecologically sustainable. Many areas with successful ecotourism have developed certification programs to create incentives for local businesses. Management authorities develop standards and criteria for certification. Criteria can include requirements for energy conservation, use of recycled materials, and use of ecological design practices. Local businesses receive certification if they meet the established criteria. The certification acts as a marketing tool to attract international tourists that want to stay at facilities that respect the environment and contribute to the local economy.

Marketing. Marketing the scenic area nationally and internationally will contribute to economic development. Findings have shown that ecotourists are interested in more than one type of ecotourism activity. This is important both from a destination-wide perspective and from the perspective of an individual operator. Operators need to offer a wide range of ecotourist options and create links with other local tourism businesses that can provide complementary experiences. Cooperation, partnerships, and research are essential. The management authority should conduct marketing surveys to monitor ecotourist needs and determine the type of services that satisfy both domestic and international tourists.

The Ethical Visitor

The Yunchianan National Scenic Area Code of Behavior

Welcome to the Yunchianan National Scenic Area. The western coast of Yunlin, Chiayi, and Tainan counties has been given National Scenic Area status in part to promote the protection of important, sensitive bird habitat. The area is home to over 200 bird species, 23 of which are endangered. As a tourist or birdwatcher, you can make a positive contribution and we are glad to have you as a partner in preserving the local culture, wildlife, and natural environment. The following are some suggestions for enjoying the site without disturbing the ecosystem while you are here. Please read our code of behavior for the ethical visitor and sign your name.

1. I will take the time to learn about the local wildlife and habitat so that my presence can contribute to the conservation of the area.
2. I will be sensitive to local customs. I will take the time to learn about the place and its history and people.
3. I will be considerate and will exercise care when observing, photographing, sound recording, or filming. I will use my flash or other artificial light sparingly when filming or photographing birds, especially with close-ups.
4. I will keep well back from nests and nesting colonies, roosts, display areas, and important feeding sites. If photographing or filming birds for long periods, I will use natural cover or a hide.
5. I will stay on roads, trails, and paths where they exist; otherwise I will disturb the natural habitat as little as possible. I will not leave trash anywhere.
6. I will follow all posted rules or regulations governing the area.
7. I will practice courtesy in my contact with other people when birding or touring.
8. I will respect the rights, interests, and skills of fellow birders as well as people participating in other outdoor activities. I will share my knowledge and experience with others.
9. I will report rare bird sightings to a local guide or proper authority to safeguard the bird.
10. If I witness unethical birding or tourist behavior, I will intervene if appropriate; otherwise I will report the activity to a local guide or appropriate authorities.
11. I will dress and act respectfully when in public.
12. I will support locally owned and staffed businesses by shopping, eating, touring, and staying overnight in them.
13. I will eat local food [*it's great!*] and buy locally produced products made with ecologically appropriate materials.
14. If I travel with a group, I will take extra precaution to be courteous to others and to minimize the impacts of our presence on the wildlife, habitat, and local community.
15. If I lead a group, I will be an exemplary role model. I will keep the group to a manageable size to minimize impacts and be sure that each member of the group is aware of any regulations governing the area.

I have read the above code of behavior for ethical visitors. By signing below, I am certified as an Ethical Visitor to the Yunchianan National Scenic Area.

_____

Visitor Signature

_____

Yunchianan National Scenic Area Stamp of Certification

Treat the earth well. It was not given to you by your parents. It was loaned to you by your children.

The Yunchianan National Scenic Area and Habitat Protection

The Yunchianan National Scenic Area (NSA) offers the opportunity to preserve and expand the habitat of the black-faced spoonbill and other Taiwan shorebirds, creating a ribbon of bird life, wetlands, and mangroves to attract domestic and international ecotourists.

The current management regime for the NSA lacks sufficient safeguards to preserve and enhance the main draws for tourism; safeguards could include land-use planning and preservation regulations at all governmental levels. If natural habitat is sufficiently degraded, spoonbills and other ecotourism attractions will disappear, harming economic development. But if natural habitat is expanded to support a sustainable level of spoonbills, long-term tourist interest can be assured. The following guidelines would work to protect and develop the NSA's core features.

GUIDELINES TO PROTECT HABITAT

PLANNING FOR HABITAT PROTECTION AND RESTORATION

1. Convene a committee of scientists, either as an advisory or oversight organization, to develop a habitat preservation and restoration plan to support important species and ecosystems within the NSA, and plan expansion of the spoonbill population to a sustainable level of 2,400 birds. (*See the* ***Land-Use Requirements for*** **Platalea minor** *sheet and the* ***Ecotourism Development and Design*** *sheet for more information.*)

2. Place a temporary moratorium on development of fishponds and other habitat or potential habitat while the plan is developed.

3. Put the plan for habitat preservation and restoration into place at the beginning of the NSA development process, so sensitive areas are not lost.

4. Develop and implement Best Management Practices (BMPs) at a sufficient level to protect habitat areas from degradation by contaminated runoff, water or air pollution, or the dumping of waste.

5. Integrate needs of all species into habitat planning.

6. Analyze environmental impacts of preservation/restoration plan on habitat and species, including impacts of projects that may help one species but hurt another.

PLAN PRESERVATION OBJECTIVES

1. Preserve core roosting habitat, wetlands, and all fishponds within the 14-km foraging radius of the black-faced spoonbill's roosting site on the Tsengwen River.

> Tainan County now supports about 400-600 spoonbills, two-thirds of the world population of this endangered bird. Habitat within this radius is crucial to the species' survival.

2. Preserve coastal wetlands in Tainan, Chiayi, and Yulin counties.

> Tainan County's wetlands, for example, support 150 species of shorebirds, including 23 "protected" species, such as the black-winged stilt and the Kentish plover.

3. Preserve sufficient fishponds in the three counties to feed a sustainable level of 2,400 spoonbills: 120 km^2 within 9-14 km of roosting sites. Managing fishponds for production of food for spoonbills and other species will reduce the area required. (*For details on the area needed, see the sheet* ***Land-Use Requirements for*** **Platalea minor**.) Proceeds from tourism could be used to conmpensate the owners of fishponds for any bird-related losses in production.

> Tainan County has 203 km^2, or 20,000 hectares, of fishponds that feed foraging spoonbills. Total potential foraging habitat in Yunlin, Chiayi, and Tainan counties, including fishponds and saltponds, is about 306 km^2.

4. Avoid land uses that would result in fragmentation of habitat, exposure of species to disturbance, disruption of movement corridors or edge habitats, or loss of stepping-stone habitats that can support feeding and resting for key species.

PLAN RESTORATION OBJECTIVES

1. Consider use of Taiwan Salt or Taiwan Sugar lands — large tracts owned by the government — as potential restoration sites for development of new roosting areas for spoonbills. Until 70 years ago, these areas were part of the natural lagoons and mudflats, and are most easily converted to suitable habitat. (*See* ***Habitat Expansion*** *sheet for further information.*)

ENSURING HABITAT VIABILITY OVER TIME

1. Encourage community/tourist involvement through education programs, opportunities to volunteer in

restoration, docenting, and monitoring of habitats and species.

2. Make use of community knowledge — bring local community members into decision-making processes; allow knowledgeable locals (such as fishermen or oyster growers) to serve as docents, educators, or workers.

3. Long-term monitoring and adaptive management:

3a. Develop a process for evaluating projects, including long-term monitoring for ecosystem health, and for evaluating tourism's impacts on the environment and NSA core attractions. Monitoring visitor experience will also ensure long-term viability. Monitoring and surveying will provide critical information for managing the scenic area.

3b. Create a system to allow the knowledge gained from monitoring and evaluation to change and improve planning and management. If the management authority can adapt and improve how it protects the resource and ensures higher-quality visitor experiences, the NSA will be more sustainable over the long term.

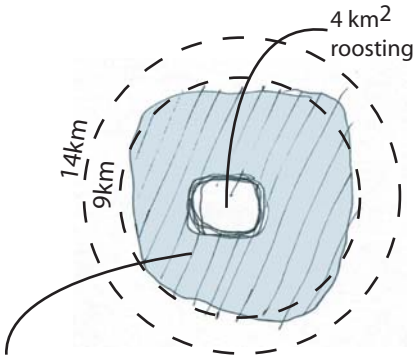
3c. Plan for continual conservation and restoration.

Land-Use Requirements for Platalea Minor and Other Wading and Wetland Birds

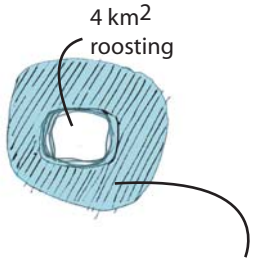
The habitats for wading and wetlands birds can be expanded along the coasts of Taiwan (*see Habitat Expansion*) if the microscale requirements of various species are satisfied. Land-use planning should be guided by these habitat geometries in order to attract diverse species of birds, creating economic opportunities for local people in nature-based tourism (*see Ecotourism Development and Design*). The endangered black-faced spoonbill has specialized requirements that also provide habitat for dozens of other wading and wetland species. This is a summary of these foraging and roosting requirements based on current literature, field observation and spatial assessments of presently used habitats.

Foraging and Roosting Area for Spoonbill Populations and Other Wetland Species

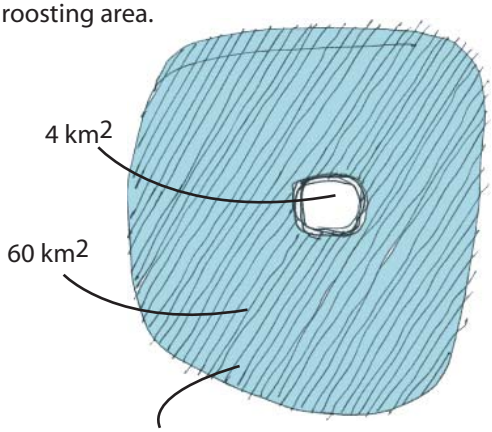
For every 100 wintering spoonbills, there needs to be a core roosting area of 4 km^2 and 20 km^2 of foraging in nearby fishponds, assuming present aquaculture practices. The foraging area needs to be within 9-14 km of the roosting site. A healthier population is likely if foraging is within 9 km of, and adjacent to, the roosting area (*see Habitat Expansion*).
If fishponds are actively managed for spoonbill foraging, the foraging area needed for 100 spoonbills can be reduced to 12 km^2. With this active management, 500 spoonbills would need 60 km^2 of fishponds and a 4 km^2 roosting area.



20 km^2 of foraging area of fishponds under present management conditions for 100 spoonbills (this assumes no increase in fish pond productivity but also no net loss to land-use conversion)



12 km^2 of foraging area of fishponds under increased productivity for 100 spoonbills

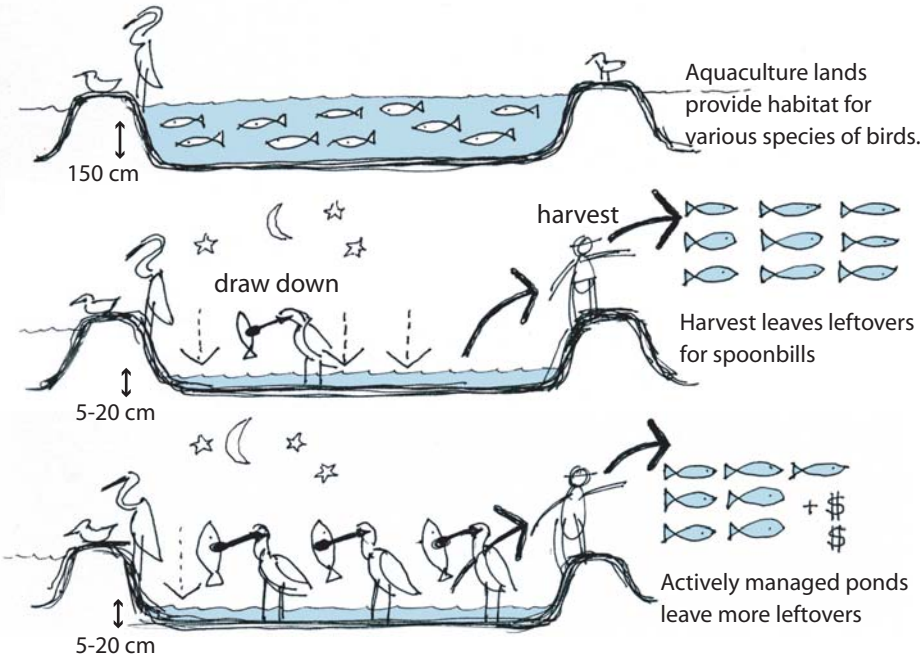


60 km^2 of foraging area for 500 spoonbills if all has increased productivity

Primary Adjacent Foraging Habitat

The foraging area directly adjacent to the roosting area should be actively managed and controlled to provide healthy prey for spoonbills and other species. This may be a combination of mudflats with shallow water, or fishponds drawn down periodically to 50-20cm. For 100 spoonbills and other species, the minimum area of 12 km^2 should be managed as follows:

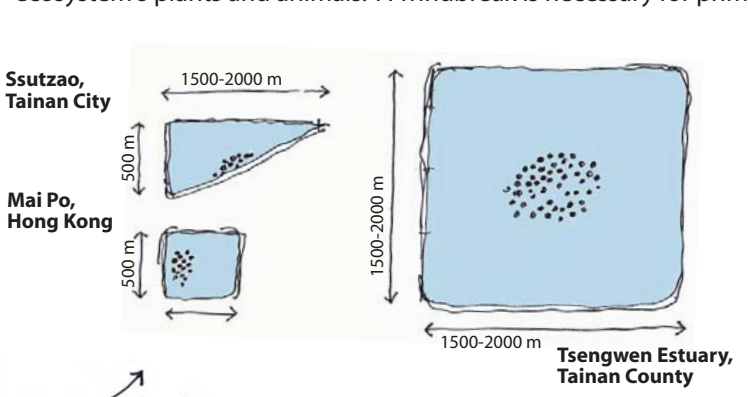
- Limit access to local fisher people, researchers, and bird watchers.
- Fisher people draw down fishponds at scheduled times.
- Fisher people can be compensated for providing adequate and healthy "leftovers" to spoonbills.
- No conversion to urban land uses allowed.
- Minimze roads and other disturbances.
- Water quality and surrounding area regularly monitored for possible toxins.
- Domestic animal and other predators controlled.

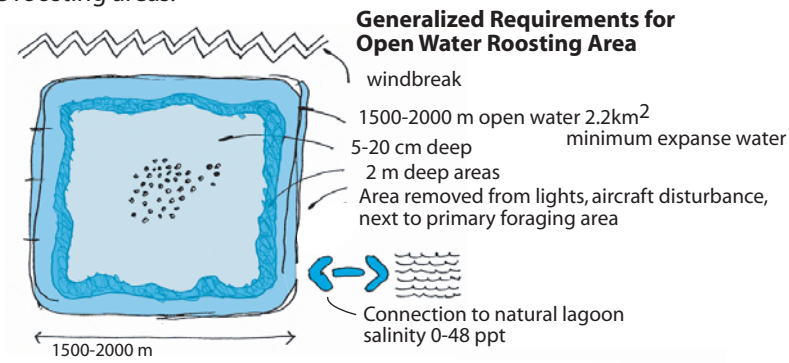


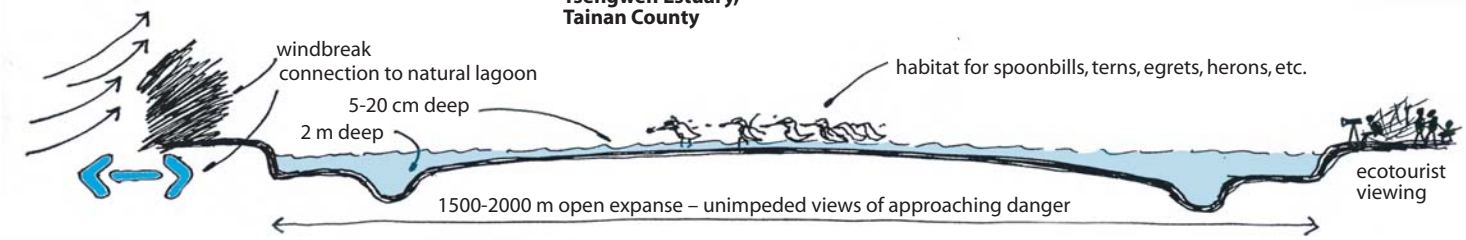
Open Water Roosting Area for Platalea minor and Other Species

Platalea minor roosts in large flocks primarily during the day. Preferred roosting habitat is highly specialized. There must be a large area of shallow open water so approaching danger (people or predators) can be detected at least 500 m away. At the Mai Po and Tainan City roosting areas, which provide between 500-1000 m of open water, the birds are frequently disturbed and roost as far away from people and predators as they can get. Platalea minor is especially sensitive to night lights, sudden noise, raptors, and airplanes. Tsengwen Estuary, the roosting site with the largest spoonbill population, has a minimum of 1500-2000 m of open water. Birds center themselves in the expanse and are seldom disturbed.

A tidal lagoon of 2.2 km^2 open water expanse 1500-2000 m should be provided for main roosting areas. No vegetation or structures should block birds' views. Center water depth should be 50-20 cm and salinity 0-48 ppt. A 2m-depth moat near the edges is needed for habitat for prey species and protection from land predators. Water exchange with natural lagoon nearby is essential to maintain the ecosystem's plants and animals. A windbreak is necessary for prime roosting areas.

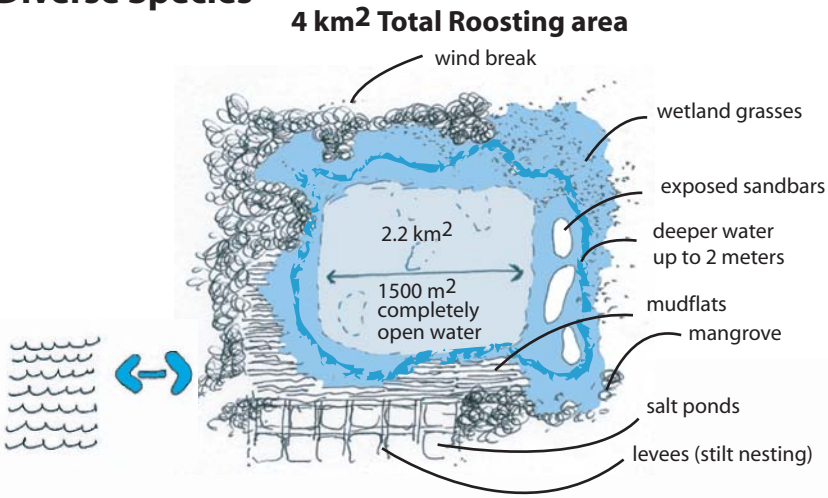


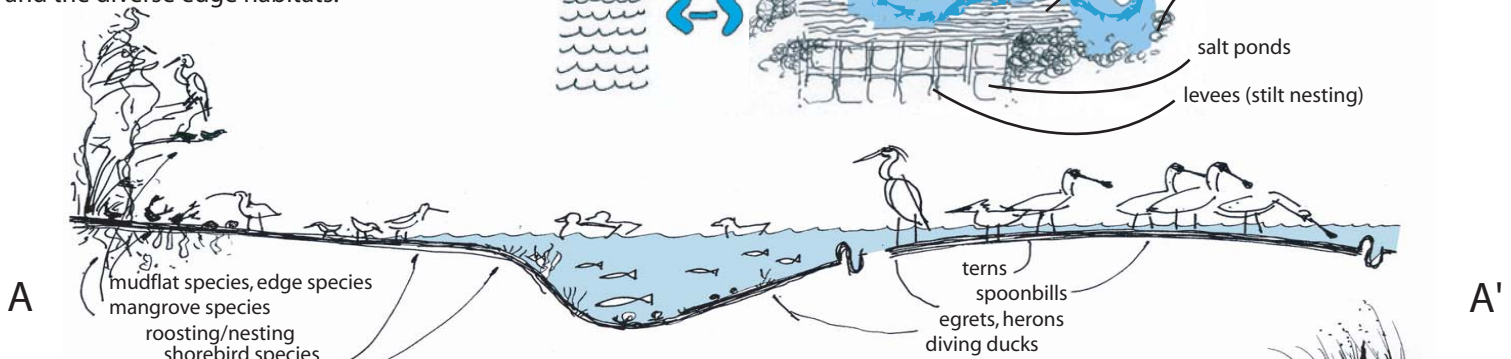


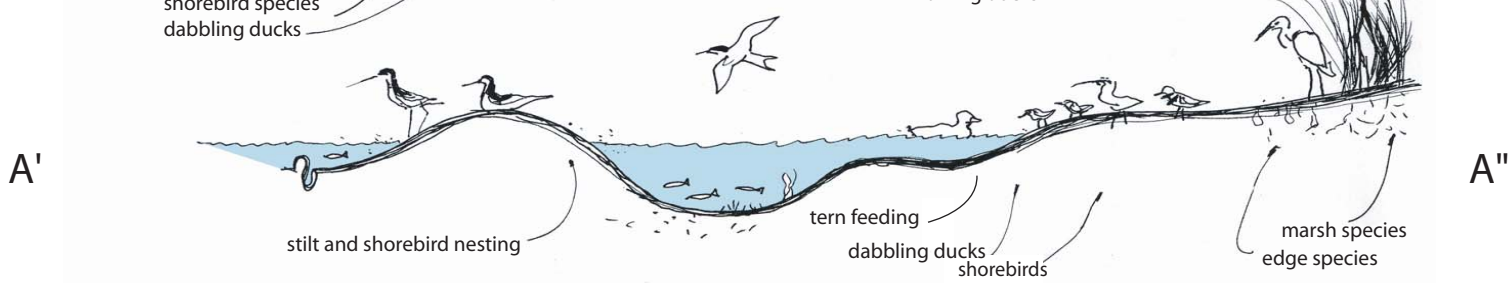


Roosting Area Environs to Attract Diverse Species

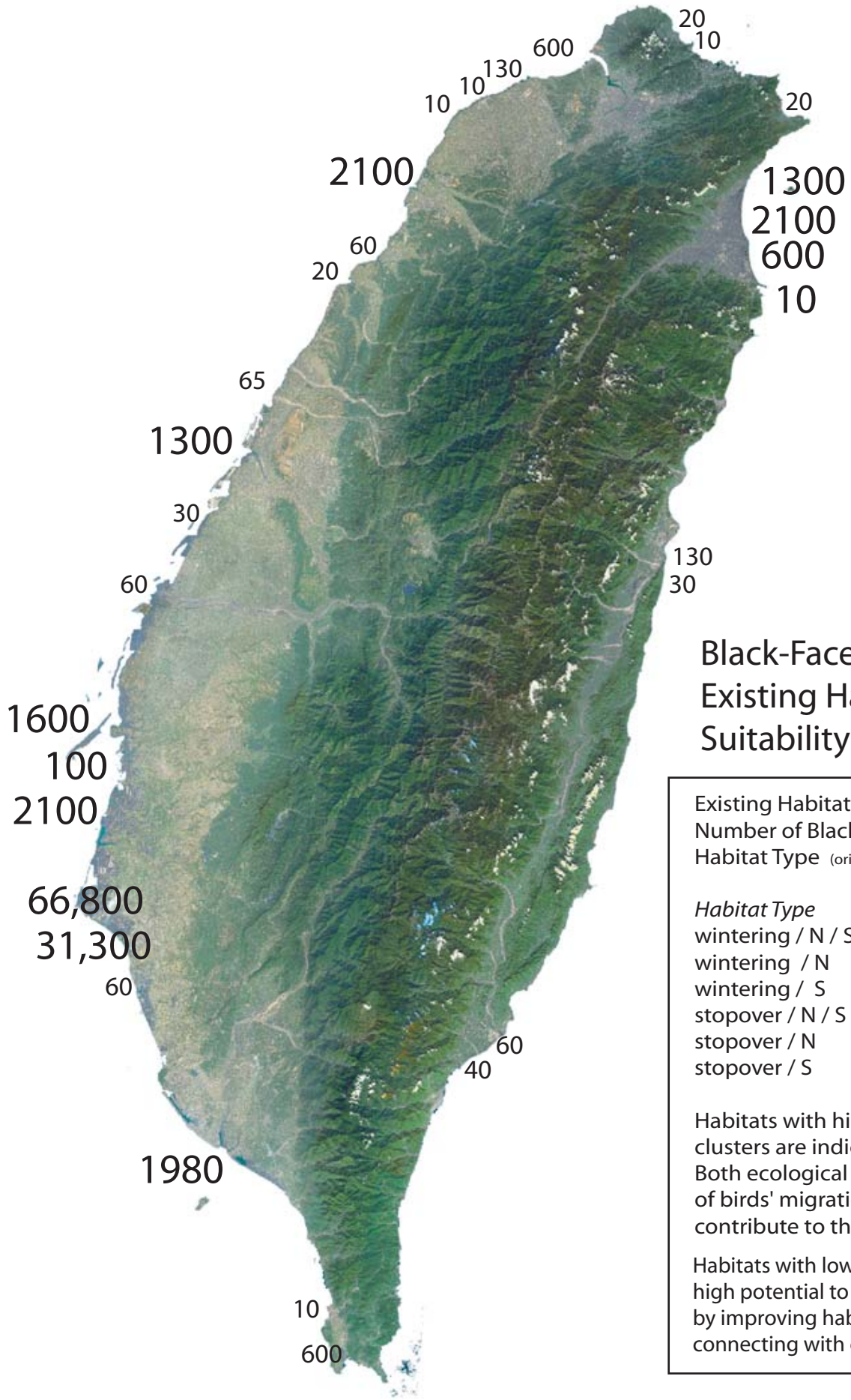
In addition to the open water roosting area, spoonbills require a variety of habitats for daytime foraging and bathing, as well as socializing, playing and developing skills for survival. These habitats include exposed sandbars, mudflats, mangrove and wetland grass edges, brackish tidal pools, and turbid lagoons. These are critical habitats for dozens of bird species. A minimum area of 4 km^2 is necessary to provide the 2.2 km^2 open water and the diverse edge habitats.







Habitat Expansion for the Black-Faced Spoonbill



Black-Faced Spoonbill Existing Habitat Suitability Analysis

Existing Habitat Suitability Index = Number of Black-Faced Spoonbills x Habitat Type (original data: Dr. Yin Wong)

Habitat Type	*Score*
wintering / N / S	100
wintering / N	50
wintering / S	50
stopover / N / S	10
stopover / N	5
stopover / S	5

Habitats with higher scores and clusters are indicated in large type. Both ecological factors and fidelity of birds' migration behavior contribute to this result.

Habitats with lower scores have high potential to increase their scores by improving habitat quality and connecting with existing habitat clusters.

POTENTIAL FOR SPOONBILL HABITAT EXPANSION

Spoonbills in Tainan County and Beyond

- Black-Faced Spoonbill population in jeopardy: size is small, based in single location
- Need to establish metapopulations elsewhere
- Region can support 2,400 birds -- a sustainable population -- in 305.75km^2 of habitat if new roosting sites shown at right in Chiayi & Yunlin counties are created and saltponds converted

Risks of Time, Failure, Injury

If new roosting sites are created, how effective will they be? Will spoonbills expand their range? Will a sustainable population be created?

- **Years of work**
  Restoration process is complex and takes time -- could be decades to develop a functioning ecosystem. Recreated habitat might never be as diverse.

- **How to move birds?**
  Even if functional habitat is created, how do birds get there?

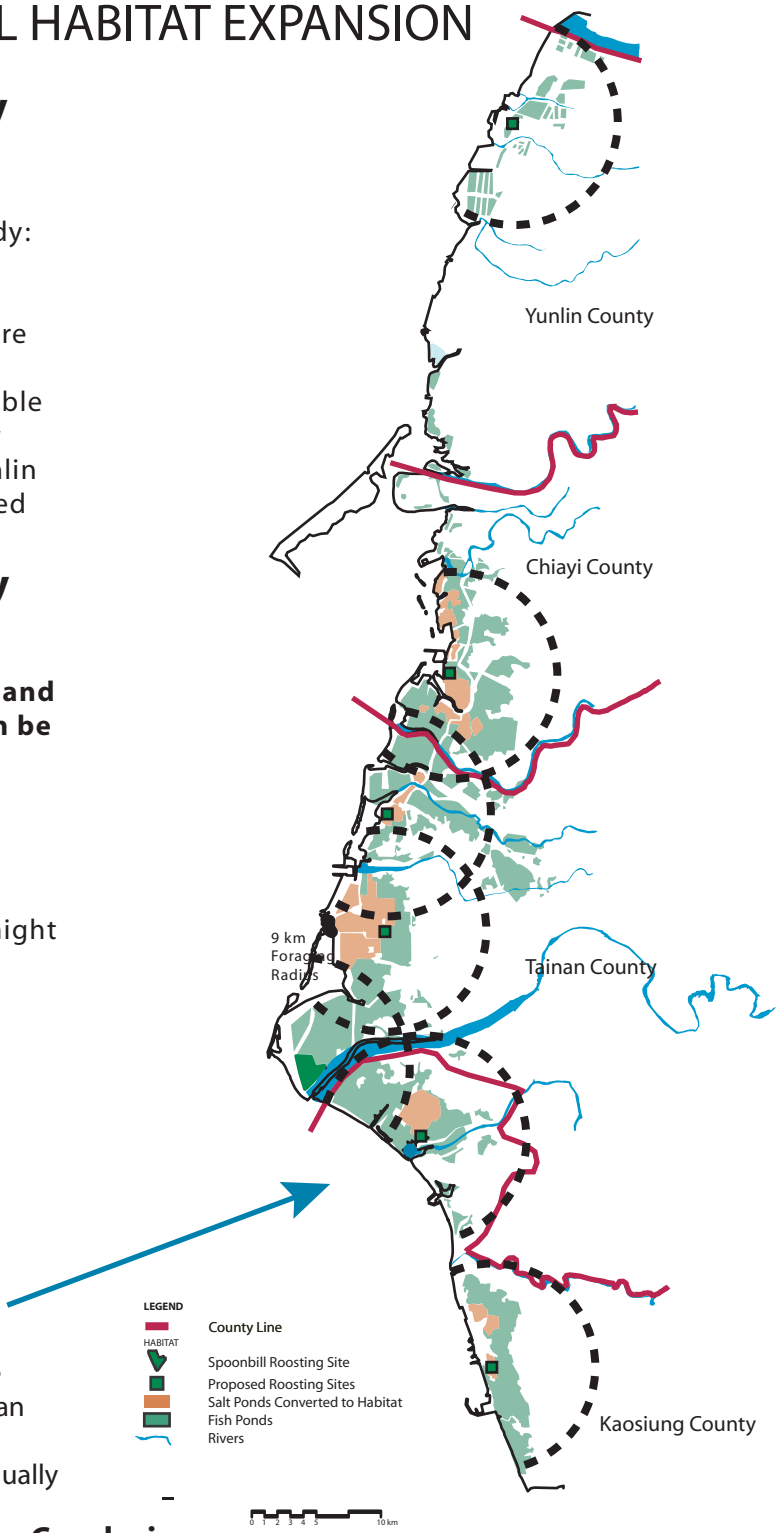
  Although decoys have been successfully used to attract birds to new roosting sites, the birds were already foraging nearby. All constructed spoonbill habitat will be outside spoonbills' natural foraging area.

  In Jan. 2002, spoonbills relocated to Sitsao on the fringe of foraging habitat. This shows the birds can migrate, but how far will they go? Stepping-stone habitats may be required to gradually link areas where metapopulations could exist.

  Physically capturing and relocating birds puts them at risk of stress and injury.

  Relocation may also exceed existing carrying capacity of area already saturated with resident wildlife.

  Reintroduction poses ethical problems; questionable success of captive breeding programs.



Conclusions

Best way to ensure long-term survival of a threatened species is to protect/enhance existing habitat -- we know it works because it's being used.

Airport development and related growth undermines this successful habitat.

Before development can begin, sustainable spoonbill populations must be established elsewhere.