



林鵟  
Black Eagle




翠鳥  
Kingfisher



青帶鳳蝶  
Common Bluebottle

臺北·水溯源  
烏來福山

Taipei • Water Traceability Wulai Fushan




白痣珈蟬  
Formosan jewelwing



褐樹蛙  
Brown Tree frog



臺灣石鱖  
Taiwan torrent carp



臺灣鏟頰魚  
Taiwan shoveljaw carp



經濟部水利署臺北水源特定區管理局  
Taipei Water Management Office, Water Resources Agency  
臺北水源特定區環境教育學習中心  
Taipei Water Source District Environmental Education Center

## Wulai Fu landscape location map



1. Fushan No.1 Bridge
2. Fushan Wastewater Treatment Plant
3. Yagan Trail
4. Limogan
5. Fushan Catholic Church
6. Tranan Experimental Elementary School
7. Tranan Suspension Bridge
8. Fubayueling Historic Trail
9. Tranan Plaza
10. Observation Deck
11. Butterfly Park
12. Ancestor's Eye
13. Water Running Upward
14. Ancient Canal Intake
15. Landscape Bridge

# Introduction of WRA

The Taipei Water Conservation Zone was the first conservation area to be established under the "Urban Planning Law". The zone covers the southeastern corner of the Greater Taipei area, which includes the districts of Pinglin, Wulai, a portion of Xindian, Shiding, and Shuangxi. Also covered is the Beishi River (Feicui Reservoir), Nanshi River, and Xindian River.



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In the 1980s, the TWMO has taken various measures to help protect these water sources, including the acquisition of pigs and removal of pig farmers, the acquisition of boats to reduce recreational boating, and assisting in the removal of the trash. In recent years, in order to collect and treat domestic point source pollution, the TWMO developed several sewerage systems; to reduce agricultural nonpoint source pollution, artificial wetlands and bioretention cells are devised. After continual communication and with collective dedication from the industry, government, academia, and public and private sectors, unsoiled water sources are therefore possible.

# Wulai Atayal Culture

The Atayal people of this area migrated from the Dahan River Valley and are the most northerly-situated group of Atayal people in Taiwan. According to records from Wulai, an Atayalan chief, Yawi Puna (a statue of him is located at Fushan Elementary School), led his people on a hunting expedition to Chiakong and Limogang. There, he discovered an abundance of fish and animals which led to him subsequently moving the rest of his people there.



**Yawi Puna**



**Original folk painting**

They created the Taranan and Limaogang tribes, which were the earliest tribes established in Wulai. The tribes later moved to the lower reaches of the Nanshi River due to an increase in population. After the development of the mountains and forests during the Japanese era and the migration of villages due to natural disasters, the Limogang, Klmut, and Taranan tribes were merged by the administrative government to form the current Fushan Village.



**Wulai Atayal Tribal Migration Path**



# Eco-friendly Water Projects

Taiwan's water resources rely on yearly "plum rains" and typhoons. However, typhoons can also bring significant destruction, especially Typhoon Soudelar in August 2015, which caused great damage to the Fushan area. Therefore, the TWMO and tribal residents have held several meetings to discuss the Taranan River conservation project, which is meant to protect the river's ecology and the safety of the tribes.

The measures taken include the use of permeable pavements to allow rainwater to infiltrate into the soil and the use of gravel to pave walkways, which increases the chance of water permeability and facilitates walking since it reduces the possibility for moss to grow. In streams, the original soil and rocks were used to create a low foundation of solid bed rock, so that water flow was gentle and it was convenient for fish to swim in. This seemingly simple hydraulic project has exhibited great ingenuity and allowed for co-existence between living creatures and the environment.



**Permeable pavement**



**Gravel paving**

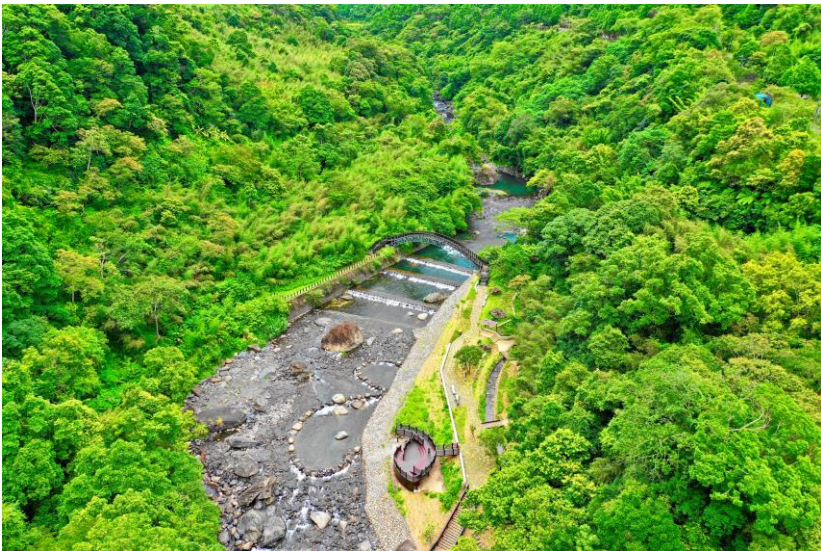


**Groundsill works and bank protection**

# Reintroduce butterfly park

The TWMO concerns not only the safety of visitors but also the living environment of creatures. In the butterfly park, ecological engineering methods are applied to trail design. The masonry retaining walls leaves small gaps for snakes, skinks, and frogs to live in. Next to the trails is a drop structure creek in which water is diverted from old ditches to create a miniature waterfall. By stabilizing flow rate and growing aquatic plants, water quality is highly improved which creates a microhabitat to increase biodiversity in the area.

The slope of the masonry embankment is designed at 30 degrees for animals' convenience to move between creeks and land. In addition, the gap between the masonry embankment can be the hiding and living spot for creatures and can leave a space for plants to grow, creating a perfect bio-embankment.



**Reintroduce butterfly park**

# Eco-water Industry at Daluohan River

Water conservation requires the participation of all sectors especially when it comes to developing the environment within the Taipei Water Protection, which requires water quality and quantity management. To this end, the TWMO has been promoting a “Green Eco-water Industry”, which combines green, water, and ecological industries in order to help protect water sources, improve the environment, and meet the needs of people and local industrial development. The Makauy plant is one of the main focuses of this project as it’s an important resource that fits the ecological and cultural characteristics of the Wulai region. It is also a plant native to Taiwan that can contain water and possesses great economic value.

Makauy” means “full of vitality and life” in the Atayal language. Its Chinese name is “Mountain Pepper” and the fruit bears a flavor similar to a combination of pepper, lemon, and ginger. In cooking, the flowers can be used to brew tea, its young leaves are used in dishes, and its fresh fruits are mashed into water to make an invigorating drink. Adding the fruit to a rib or chicken stew can give it a more natural and delicate flavor. The plant can also be turned into an essential oil, which can repel mosquitos and insect, deodorize, and prevent mold and bacterial growth.



**Makauy**



**Makauy grain products**

## Commonly Found Flora at Daluohan River



Asian taro



Taro



Ramie

### Asian taro

Asian taro bears a similar appearance to taro. However, they possess larger leaves, deeper cracks, and a smoother surface. Its taste is pungent, astringent, and is poisonous to people. Their leaves allow for even water dispersal since they are hairless, unlike regular taro where water gathers in droplets. Asian taro can be found everywhere in the forests of the humid Wulai mountains. They are an important resource for the aboriginal people.

### Ramie

Ramie is a domesticated fiber plant and accounts for a large portion of exports. Its fibers are long, opaque, and possess a beautiful luster similar to silk. These fibers are also highly pest-resistant, tough, white, and easy to dye, making it a high-quality fabric for dyeing. The seeds contain an oil and the roots and leaves can be used in medicine, making them highly valuable. Ramie fiber is the main source of textile clothing for aboriginal people living in this area, and it was also an important agricultural sub-crop for Taiwan in the past.



## Commonly Found Fauna at Daluohan River



### Common bluebottle

The common bluebottle is a subspecies endemic to Taiwan. It is found in the flatlands and low elevation mountains where it likes to visit flowering bushes or gather on moist ground to absorb water. The adult bluebottle is characterized by a blue band on its wings.



### Plumbeous water redstart

The lead-colored redstart mostly inhabits streams in low to mid-elevation mountainous areas. It is very territorial and feeds mainly on insects. Its entire body is mostly grayish-blue. Males possess a red tail while females have white tail feathers.



### Brown tree frog

This species is endemic to Taiwan and widely distribution in low-elevation areas. It usually inhabits trees or rocky crevices and breeds in streams. Their body color is mainly brown, ranging from light brown to dark brown, and they are characterized by a yellowish triangular patch from the eyes to the end of the muzzle.



### Kingfisher

Kingfishers live in lakes, ponds, streams, ditches and other water areas in the flatlands and mid-elevation areas. They will rest on the racks at the water's edge or on prominent branches to observe their prey in the water.



### Taiwan torrent carp

This species of fish is endemic to Taiwan, preferring to inhabit streams and deep pools with rapid currents, high oxygen levels, and clear water. They are omnivores with seven black horizontal bands on their side. Adults come out at night to feed and hide in rocky crevices during the day, while juveniles spend their days foraging along the shoreline, among rocks, or on rocky walls.

## Something need to know before hydrophilic activities



The water source specific area is located in the upper reaches of streams in mountainous areas. Please be careful when entering the area for activities close to streams:

1. Before entering the mountain, please check the weather in advance. In case of heavy rain, typhoon and other weather forecast, please don't entering the mountain.
2. Observe the surrounding environment before activities in the water area, and know the routes that can be retreated or circled in case of emergencies.
3. Thunderstorms are often caused by terrain in mountainous areas. In case of temporary heavy rain, please leave the water area immediately.
4. Always pay attention to the surrounding conditions when you are in the water. If you see clouds on the top of the mountain, hear thunder. Please leave the water area as soon as possible.
5. Wear non-skid shoes when across a stream. If you are trapped in a muddy or swollen stream, try to take a high detour to a safe place for help. Don't wade rashly across a stream.
6. Please carry whistle when you are in mountain areas. You can call for help or warn others in case of emergency.



**Upstream of Nanshi Stream**