

Treks of Nature:

I. A trek along the Jiuqudong (Tunnel of Nine Turns) Trail (estimated time required: 4-5 h)

Toroko Visitor Center---Buluowan---Swallow Grotto---Tianxiang---Jiuqudong Trail
(Hwy. No. 8, 184.5 km) (Hwy. No. 8, 177.8 km) (Hwy. No. 8, 176.9 km) (Hwy. No. 8 167.4 km) (Hwy. No. 8, 173.7 km)

Changchun Shrine---Qingshui Cliff

(Hwy. No. 8, 186 km) (Hwy. No. 9, 180.4 km)

Brief introduction to the trek: This trek is the best selection for tourists who do not spend a lot of time in the national park while trying to get the magnificent sceneries of the famous marble canyon (gorge) there. The trek starts from the Taroko Visitor Center (Park Headquarters) to Tianxiang 19 km away, requiring about 30 to 40 min of automobile ride. Along the route, the trek passes Buluowan, Swallow Grotto, and to Tianxiang, then from Tianxiang turns back to Jiuqudong (Tunnel of Nine Turns Trail). Disembark (Get off) at the west end of the Trail, walk for 700 meters, which take about 30 min, return to the west end of Trail (double back), after glancing the Old Zhuilu Trail, get on the vehicle and move on to the next stop at Changchun Shrine (Eternal Spring Shrine), pay a tribute at the shrine to the dedicated workers who had lost their live constructing this awe-inspiring roadway..... All the wonderful mountain and river sceneries along this trek are what a first-time visitor like you should have enjoyed. After seeing the scenes of the canyon, you can proceed to the Su-hua highway. The park administration has established several viewing platforms along the coast within the premises of the park.

You can get an impressive view of the Qingshui Cliff. Also, at Heren (Hwy. No. 9, 174 km), the north end of the Chongde Tunnel (Hwy. No. 9, 180.4 km, about 11km away from Park Headquarters/10 min by car), and the north end of the Huide Tunnel (Hwy. No. 9, 181 km), there is an observation platform, where you may enjoy the sights of floral ecology of the coastal area and the majestic Pacific Ocean.

Brief introduction of the scenic spots

- Taroko Visitor Center (Park Headquarters): The old exhibition hall of the Taroko Visitor Center has been redesigned as a “Environmental Education Hall,” a “Humans in the Environment Hall,” and a “Tourists Travel Information Hall,” as well as a “Special Exhibition Room” in November 2002 and a renovation in December 2014. We would suggest to the tourists that before entering the Central Cross-Island Highway and beholding the sceneries of the gorge, please drop by the Taroko Visitor Center first to get detailed travel information and then proceed to sightseeing. You could access the center by disembarking a train at the Xincheng Station (Taroko 302 bus, or Ubus 310, or Hualien 1133 bus), then taking a taxi ride of about 7 minutes to reach here. If you arrive at Hualien Train Station, then you can take a bus at the nearby bus depot run by Ubus 310 or Hualien Bus Co. (Hualien 1133 bus)(Some buses stop at Park Headquarters), (Some buses stop only at the east entrance of the Park. The bus stops a drug store at the east entrance of the Park, 700 meters away from Park Headquarters) to the center (or by car rental), the distance is 26 km and needs about 1 h to reach the Taroko Visitor Center.(or a rental car takes about 30 minutes to reach the Park.)

The opening hours of the center: 08:30 to 17:00

Closure days of the center: Every second Monday of the month (if the day falls on the national holiday, then it is shifted 1 day later), and the Chinese New Year's Eve.

Appointment for briefing, guided tour of the exhibition hall, and tour interpreter service, please phone: (03) 8621100 ext. 801 - 806, or 360, 811 or contact us at <http://www/taroko.gov.tw>.

Phone nos. of Hualien Bus Co.: (03) 8323485 Ubus: (03)8310192

Taroko Bus Co.: 0800-827656

- A brief introduction to Taroko Terrace (Park Headquarters): The terrace is at one side of the intersection between the old section Hwy. No. 9 (Su-hua Highway) and

Hwy. No. 8 (Central Cross-Island Highway). The terrace has an area of about 3 hectares. The Taroko Visitor Center, the Administrative Office of the Taroko National Park Headquarters, and the Taoroko Branch, Ninth Division, The Seventh Special Police Corps, National Police Agency are located on the terrace. Along the Central Cross-Island Highway (Hwy. No. 8), there are other alluvial terraces much like the Taroko Terrace; these include Buluowan, Lushui, Tianxiang, Xibao.... When you pass by those locations, don't forget to observe these flatlands near rivers, and ponder on their genesis.

- Buluowan Terraces: In bygone days this place was the tribal land of Truku (Taroko) People (also called Deluku (phonetics sound), a branch of the Truku tribe). The place is named for Truku language "Buluowan," which mean "tracking prey land." The cultural activities of this place could be divided into the following periods:
 1. Pre-historical activities: The relic sites of pre-historical culture that entered the Taroko area about 2000 years ago.
 2. Taroko aborigines: They migrated from western Taiwan across the Central Mountain Range to this location about 200 plus years ago.
 3. Japanese occupation period: The Truku tribe gradually emigrated to the nearby villages of Fushi, Chongde, Xiulin, and Sanzhan etc.
 4. The Retser (retired servicemen) Engineering Department: During the period from 1979 to 1991, the Retser had setup office buildings and dynamite sheds etc. at this location.

Buluowan Service Station: Established on April 26, 1991. The station is located at the mid point, 10 km each from both Taroko and Tianxiang. The station has an elevation of 370 m above sea level, with a total area of about 9 hectares, and situated at a 2 stage alluvial terraces. The upper terrace was built as a resident area having 14 buildings of suites (28 units), 4 buildings of bunker beds (8 units). These buildings are nearing completion about September 24, 2004 and has been contracted out in an OT (operate and transfer) manner. For the lodging, please call booking phone no. of "Taroko Village Hotel": (03) 8610111 or their website: <http://www.tarokovillage.com/?lang=en>

- The lower terrace has office of the Buluowan (Administrative) Service station, cultural exhibition hall, and briefing room. There is a hiking trail leading to the Swallow Grotto(Yanzikou). Buluowan greenhouse is currently engaging in the restoration of indigenous plants, such as *Hypericum geminiflorum* Hemsl., Chinese (golden-flowered) amaryllis, Chinese (golden-flowered) firethorn (*Pyracantha koidzumii*), and Formosan lily (*Lilium formosanum*) etc. In balmy April, you must not miss out on the wonderful scene of a valley full of Formosan lily blossoms.

Opening hours of the Buluowan Service Station: 08:30 to 16:30.

Days of closure: Every 1st and 3rd Mondays of the month (if the day falls on the national holiday, then it is shifted 1 day later), and the Chinese New Year's Eve.

Appointment for briefing, and travel information inquiry, please phone: (03) 8612521, (03) 8612528 or contact us at our website: <http://www.taroko.gov.tw>.

- *Swallow Grotto(Yanzikou): On the cliff walls there are numerous potholes of varying sizes, which were formed by long time grinding of entrained pebbles carried in by river water. These holes have small openings and spacious insides just like teapots, thus the name. During the spring and summertime, there are often swallows clipping through the canyon, thus the myth of swallows building nests inside the potholes, leading to the name of Swallow Grotto. In reality, there is no sign swallows ever nested inside the holes. Contrarily, when you walk on the tunnels chiseled out of the cliff faces and find splatters of bird droppings, then you can lift you head and search above you, there will often be semi-cup shaped dirt structures in rock fracture, which are the nests of the swallows (mostly Swifts and Pacific Swallows).

*Tianxiang: Used to be called Tabido during the Japanese occupation period. The name was derived from the Taroko language “tabido” (Tabido is the Truku word for Formosan Sugar Palm (*Arenga engleri*), which grew profusely there at that time. After retrocession of Taiwan, The former president Mr. Chiang Chingkuo renamed the place Tianxiang. There are bus stop, public washrooms, restaurants, a five star hotel, and youth hostel at the place. The park offices also setup a service station here, providing travel information and simple meals to ordinary visitors. This is a tourist spot providing all the conveniences of food, clothing, residence and transportation.

Tianxiang Service Station of the Taroko National Park, phone: (03) 8691162.
(03)-8691466 For accommodation please contact: Silks Place Taroko Hotel in Tianxiang, phone: (03) 8691155 (<http://taroko.silksplace.com.tw/>); Tianxiang Youth Activity Center, phone: (03) 8691111(<http://cyctsyac.myweb.hinet.net/>); or visit our website at <http://www.taroko.gov.tw> and the website of Hualien County Government at <http://www.hlhg.gov.tw/>

***Jiuqudong (Tunnel of Nine Turns)**: The distance between Swallow Grotto (Yanzikou) and Jiuqudong is about 5 km. This section is the crème of the marble canyon. Although the national park is known for its renowned gorge sceneries, but the rocks exposed along the Central Cross-Island Highway, in addition to marble, there are also schist, gneiss, slate and Meta-quartz etc. The aforementioned rocks often interleaf and mingle to different extents and showing a varied combination. These rocks were uplifted by earth’s crust then eroded by the down-cutting power of the rushing water of the Liwu River. Over the eons, the river valley had exhibited varying shapes. Due to its compactness, the upper slopes of the marble canyon would not collapse when gouged by river water, thus forming vertical walls of U shaped canyon. This section has divided motorway and trail (the Jiuqudong tunnel is 1113 m in length); hence, visitors could amble safely and view the spectacular sceneries on the original Central Cross-Island Highway without the worry of vehicular traffic. Note: Tunnel of Nine Turns Trail length: The west tunnel trailhead 700 meters one way/ 1.4 km for a round trip/ 30 minutes on foot for a round trip Only temporary parking (pick-up/drop-off) for cars and buses are available for the Tunnel of Nine Turns (Jiuqudong) Trail, due to the proximity of the trail to the Highway and the steep gorge terrain in the area. Visitors to this Trail are encouraged to use public transport or scooters and to enter during off-peak hours and days. Please pay attention to the following traffic information and suggestions:

1. Public transport to Jiuqudong Bus Station: Buses 310, 1126, 1133, 1141, 302 from Hualien and Xincheng Train (TRA) stations or at the park headquarters visitor center.
2. Individual and group tours: Cars and buses are able to drop-off/pick-up tourists at the West Entrance of the Tunnel of Nine Turns Trail. The nearest parking lots are at Helio (171.4K, 2.3 km away) and Lushui (170.7K, 3.3 km away) and Tianxiang (5 km away) (1 for drivers to wait for tourists.) There are scooters parking available at the trailhead of Tunnel of Nine Turns Rockfall Prevention Tunnel.
3. Private vehicles: Please park at the nearest parking lots at Helio (171.4K, 2.3 km away) and Lushui (170.7K, 3.3 km away), and and Tianxiang (5 km away) and then take a bus to the Tunnel of Nine Turns trail entrance.

Note: The above 3 bus companies (Ubus 310, Hualien Bus 1133, 1126 or 1141 & Taroko Bus 302) fare can be paid by cash (exact change only) or via Taipei Metro EasyCard, iPass, or iCash.

Please use the app to download e-Bus for bus details.

*Changchun Shrine (Eternal Spring Shrine): A shrine built and dedicated to the

memory of the deceased road builders of the Central Cross-Island Highway. The shrine has been demolished twice by landslide in 1980 and 1987. The suspected reason was that it was built under a fault line. Now, it was rebuilt to the left of the original one. On one side, there is a Changchun Shrine trail.

*Changchun Shrine trail: Located at Hwy. No. 8, 184.2 km marks, about 2.3 km from the Taroko Visitor Center. You can proceed from Changuang Temple (Zen monastery), cross a suspension bridge; walk up the stairs, passing a carillon (bell tower) to the old Changchun Bridge. The total length of the trail is about 2 km, and which takes about 1 h to complete. Along the route, there are diverse natural and cultural scenes such as temple (Zen monastery), engraved stones, suspension bridge, creek, forest, caves and spring etc. One can get a wonderful view at the high point, with all the neighboring sceneries of mountains and rivers under the eyes.

*Service station of the Su-hua Highway section: The Service station of the Su-hua highway section was established in June 1, 2000. The station is in charge of the maintenance and management of various facilities in the section north of the Jinwen Bridge (by the Park Headquarters) to the south section of Kanagan Bridge at Heren, including scenic stops of Chongde, Huide, Daqingshui, and Heren etc., as well as the interpretive and information services. The perimeters of the Su-hua Highway are the only coastal regions of the Taroko National Park. The magnificent view of precipitous cliff encroaching right to the seashore at Qingshui Cliff is scenery you should not miss.

In-depth Travel Guide: The natural sculpture--Joints

Rocks or rock strata must always contain fracture. These are the indelible marks of the results of conflicts between various forces and the rocks over the eons as the wheel of time grinds on. Actually, these seemingly chaotic fractures are mostly following specific rules. Some rock ruptures have no lateral movement, called joint; but in other places, the rock strata not only ruptured, but the two sides of the rupture had relative movement, which is called "fault."

If the rock strata of a place have numerous joints and faults, it would suggest that the rock strata of the place is relatively fragile, and easily cracked, thus has higher risk of collapsing. The rock formation of the Taroko National Park belongs to metamorphic zone that had subjected to strong compression. There are abundant fracture such as joints and faults in its rock strata. When it rains, then there are often incidents of falling rocks and landslides.

Rock joint usually will not contain only one fracture plane. Quite often the fracture planes are roughly parallel and having joints of different scales. Some joints are merely several centimeters, while others may stretch for several tens of meters, even several hundred meters. The densities of the joints also varied, some are fairly close by with between grain distances only several meters apart. The roughly parallel fracture planes, because of their similar direction of extension, belong to a single set of joints. If there is another set of roughly parallel fracture planes, which has direction of extension differ from the former ones, then those fracture planes represent another set of joints.

Joints tended to form in dense and hard rocks. For soft or fragile rocks, due to their softer texture that can easily shift when subjected to external stresses, there is rarely the occurrence of joints. For sedimentary zone, joints often occur in sandstone or limestone. They rarely occur in shale. There are only metamorphic rocks in the premises of the Taroko National Park. Among the rocks there, marble and meta-sandstone formed joints easily, whereas schist, phyllite, or slate are weaker, thus the joints are less obvious among them.

Sometimes, there are 2 sets of joints, which are perpendicular to each other. If this occurs near the coastal area, then the crack of the joints will enlarge after long period of erosion by seawater, rendering these hard rocks into blocks of squares, much like well-aligned tofu piece, which we call specifically "tofu rocks." You can find

those rocks at Yeliu and Heping Island of Keelung in northern Taiwan.

Joints in rock of rock strata should not put us off. From another perspective, just due to the existence of these rock joints, there are more varied natural landscapes. Which in turn create a more rich and beautiful sceneries. [Text written by Tong-yu Zou]

In-Depth Travel Guide: The greens that creep up the sheer rock walls of the canyon (gorge)

When you walk among the canyon of the Taroko Gorge, besides enjoying the magnificent sceneries of the canyon, when you lift your head, you may glance many green plants sway in the wind right on the sheer walls. These are the “lithophytes” that grow in rock fissure.

“Lithophytes” mostly belong to genre of sun-seeking and draught-tolerant plants. Because they are unable to compete with neutral and shade-tolerant plants in rich, thick soils, they opt to retreat to rock ground having less competitive stresses. The ability to propagate is often the important limiting factor affecting the distribution and regeneration of ordinary plants. The ability of “lithophytes” to distribute at steep cliff walls or rocky grounds is merely a reflection of their possessing flying seeds or seeds that are preferred by birds or animals.

The cliff walls between Jiuqudong (Tunnel of Nine Turns Trail) and Swallow Grotto (Yanzikou) often have uplift air streams that carry the tiny seeds of Taiwan Giantreed (*Arundo formosana* Hack) to alight in the fissure of the sheer cliff walls. In this region, there are other plant species such as Mori’s mum, flying moth tree (*Acer albopurpurascens*), green maple (*Acer serrulatum*), switch sorrel (*Dodonaea viscosa*), Formosan red alder (*Alnus formosanus*) etc. that rely on wind to disperse their seeds. Some of these plants have tiny seeds; some have exocarps that extend outward forming flimsy wings to facilitate soaring in wind. Among the plants that depend on birds or animals for seed dispersal, there are fig plants of the Moraceae, such as red fruit fig-tree (*Ficus superba*), and white bark fig-tree (*Ficus benjamina*) (the fig fruit we consume belong to the same genus, *F. carica*, therefore, the tastiness of these fruits can be imaged), as well as Chinese honeylocust (*Gleditsia sinensis*), and Formosan elaeagnus (*Elaeagnus formosana*) etc. When seeds of plants enter rock fissure and germinate, they must possess the capability and adaptability of resisting draught and weather frequent rock falls in order to live long period of time on a rock wall. Therefore, large arid type plants usually do not fare well here, leading to dwarf or shrubby forms, such as often seen in Chinese pistache (*Pistacia chinensis*), and switch sorrel etc. Frequent slumping off of the rocks cause the plants having difficulty staying on the cliff faces. Thus, only a few species possess certain characteristics that enable them to cope. Species such as the white bark fig tree and other figs that have well developed aerial root systems spreading over wide areas will survive small-scale rock falls without much harm.

Furthermore, in some narrow canyons, because the sunlight having difficulty shining in, the area is usually shadier. Here, there is often distributed on the cliff faces large patches of Taiwan Giantreed. The Japanese silver grass (*Miscanthus floridulus*), which belongs to the same ecological niche, often appears on sunny cliff sides however. Thus along with the changes in the gorge’s landscape, turning to open up or narrow down, these 2 species would appear alternately. This is an interesting point to observe. (Text written by Mao-Yao Lin).

In-Depth Travel Guide: The Building of the Central Cross-Island Highway (Hwy. No.8)

In 1949, the government with considerations of economy and national defense had decided to construct an east-west trans-island highway to better facilitate transportation between the eastern and western parts of the island. Thus, the Taiwan Provincial Highway Bureau started preliminary paperwork on the project. Two routes were selected, as the northern and southern routes. The southern route would start

from Chunyang in Nantou County to Tongmen in Hualien County; whereas the northern route would follow the Old Cross-Hehuan Mountain Road originally constructed during the Japanese occupation era (1895-1945), linking Wushe in Nantou to Taroko in Hualien. Subsequently, after several surveying expeditions carried out careful on-site inspections during 1952 to 1953, the northern route was selected due to its superior conditions.

Later, because the “1955 Fiscal Year Military Assisted Military Roadway Project,” route planning included Dongshi in Taichung County to Hualien, and Dongshi to Luodong in Yilan routes for considerations. In 1954, survey expedition teams were organized again for separate routing surveys. The results was to settle on the route from Dongshi to Taroko, a total distance of 192.78 km, as the main line, and from Lishan to Luodong as the Yilan Branch Line. Logistic worries on machinery and other material supplies for the central section of the main line construction led to the construction of the originally planned Old Cross-Hehuan Road route from Wushe to Dayuling (use to be called Hehuan Junction--phonetic sound ”Ya-kou”) as a supply route. This is what today we call “Wushe Branch Line (Hwy. No. 14A),” which has a total distance of 43 km.

After 7 long years of surveys and much concerted effort, a further 6 month was spent with an expenditure of 4.12 million NT dollars, which saw 4 survey teams engaged in detailed sectional surveying, the complete line was established. The Road Building Engineering Team started the construction work in July 7th, 1956. “This is a road impossible to complete,” said many people at that time. But a team of about 5000 Retser (Retire Service) Engineering Corp members, together with infantrymen from military service, military prisoners, correctional service inmates, youths without work, students, citizens, and hired men of construction contractors, working in a concerted effort undertook the challenge. Each day saw a team of 5000 to 6000 manpower working at different construction sections. The workers were often buffeted by the threats of natural disasters such as typhoons, earthquakes, torrential rains etc. Casualty deaths, and damages to roadwork or equipment were not infrequent. Under innumerable hardships, roadway was cut out of solid rocks; bridges spanned deep valley and gullies. After spending a hefty budget of 430 million NT dollars, and 3 years 9 months and 18 days of hard work, the road was complete and open formally for full line traffic in May 9th, 1960, turning a proud new page in the transportation history of Taiwan. (Text written by Xiu-Ying Gao)