



國家公園 礦藏 保衛戰

## Guarding the Nature against Mining

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**疾**駛的火車通過北迴線上的崇德火車站，站前海拔45公尺處，一大片達2.35公頃的裸露山壁景觀，與周邊林相形成強烈對比，令人觸目難忘。這裡原是大理石礦區，劃入太魯閣國家公園後，於1987年停採，因為近乎垂直的採掘壁過於陡峭，植被恢復極為困難，迄今24年，光禿症狀仍無法治癒。

太魯閣與玉山、陽明山3座國家公園，早在設立之前，已經開發並且擁有礦權的業者不少，在講求經濟發展的1980年代，國家公園設置的，景觀維護與礦產開發之爭屢屢上演。翻開一頁頁國家公園史，訴說的不僅是相關人員的堅持奮戰，還記載著人與土地的深沉思索。

In front of Chongde Station on the North-Link railway, at 45 meters above sea level, the 2.35-hectare bald mountain wall poses a stark contrast with the surrounding forests. The place used to be a marble mine that ceased operations in 1987 after it was designated into TNP. Now, despite 24 years of effort, the near vertical wall still remains barren with little vegetation.

Prior to the establishment of the national parks of Taroko, Yushan, and Yangmingshan, many companies with mining rights had been quite active in these areas. The 1980s saw the advent of the three parks, but it was accompanied by constant battles between environmental protection and mine exploitation, marking the history of Taiwan's



想像童山濯濯，林木稀落的太魯閣；想像道路穿越，卡車來回的玉山；想像礦渣傾倒，滿目焦土的陽明山……若非國家公園成立，這些想像的畫面會一一成為真實的見聞。

### 禁採補償 遙遙長路

在臺灣經濟起飛的年代，採礦活動確實貢獻了社會、經濟的發展，但不可避免地，大部分礦產的開發與利用嚴重破壞地表原有的環境，如肥沃的農田成了沼澤地、含水地層枯竭、落岩山崩、土地荒漠化……加上礦藏位置無法選擇，一旦開發工程啟動，難以避免的經濟發展與環境保育之爭也就此開戰。

1950年，為加速國內經濟成長，當時的政府鼓勵以礦業扶植工業，一時之間，礦業發展興盛，以致在太魯閣國家公園成立之前，園區內的礦區便計有33處。後來，在太魯閣國家公園開始規劃園區範圍時，反對的聲浪就不斷出現，有些業者甚至直接以怪手和炸藥搶挖礦石，嚴重破壞清水斷崖和三棧溪南北谷一帶的美麗景觀。當時的營建署署長張隆盛陪同立委們至現場會勘，親見清澈溪谷被毀容成黑泥塘，人人都痛心的說不出話來。

1986年太魯閣國家公園成立，當時擁有礦權的業者，有的因無法取得土地承租權，或受限於法令，或因經濟價值不高等因素，並未實際進行採礦，但在礦權相繼屆滿時，礦主基於保障自身權益，大多仍會申請礦權展延。1998年4月12日，礦務局核准榮工處花蓮大理石廠展延其位於魯丹溪的採礦權，引發了社會的輿論與關注，在禁區補償方面，礦務局與太管處也都堅持其立場，最後由當時的行政院院長蕭萬長做下以保育為重的決議，才讓這場爭議告一段落。

national parks with hard-fought victories against mining and reflections on the relation between humans and the land.

Imagine a treeless Taroko, a truck-rampaged Jade Mountain, and a slag-filled charred Yangmingshan..... Had the national parks not been established, these could well have become some painful realities.

### A Long Fight in Taroko

Mining had once played a major role in Taiwan's social, economic and cultural development. However, it drastically changed the landscapes, dried up the aquifers, and caused landslides and desertification. Besides, once the exploitation of the mineral deposits began, it almost always led to confrontations between parties with conflicting stances.

In 1950, the government sought the support of the mining industry to fuel industrial development. As a result, as many as 33 mining sites mushroomed before TNP was set up. Then opposing voices for the establishment of TNP emerged during the planning stage, and things took a nasty turn when some mining companies used excavators or even explosives for the ores and damaged the landscape of Qingshui Cliff and Sanzhan River valley. Mr. Lung-Sheng Chang, the then Director-general of CPAMI, recalled that when he saw the limpid water had been turned into dark mud, he was heartbroken.

In 1986 when TNP was set up, some companies with mining rights didn't actually do mining there, for some failed to obtain leasehold or were bound by laws. However, the companies would still apply for an extension to the rights as they were about to expire. On April 12, 1998, an approval to extend mining rights by the Bureau of Mine to a marble factory in Hualien sparked public debate. In the meantime, the bureau and TNP also stuck to their respective grounds.

匯德礦區的採掘痕跡 / 林茂耀攝

The traces of excavation left by Huide Mine./ by Mao-yao Lin



1998年，太魯閣區內僅剩的19處礦區，除了正大石礦公司，因為處理蘇花公路崇德舊管制站附近山壁崩落的石塊仍在開採外，其他礦區均已停採。停採原因之一，是大理岩紋路雖然美麗，常被使用為建築物外牆、地板及家具用石材，但因大理岩硬度不高，不耐久磨，且若長期暴露在酸性雨水下容易受蝕，因而在建材上的使用度逐漸被進口的花崗石取代，對其需求自然銳減。

即使園區內礦區多已停採，但為徹底解決礦權問題，讓已開採、遭破壞的礦區恢復生息，太管處遂於1998年8月10日，首次與園區內19家礦主商討礦區禁採補償事宜，雖當時礦主普遍對這項提議興致不高，但太管處正式在禁採補償的工作上，跨出了第一步，也開啟了辛苦的漫漫長路。

自首次與礦主協商補償事宜後，2002年開始，太管處即分段展開礦區補償的協調工作。2002年間，太管處邀集經濟部礦務局東區辦事處、林務局花蓮林區管理處、秀林鄉公所等及臺灣區石礦業同業公會與礦業權主代表，召開申請劃設礦業禁採區暨補償協調會，並蒐集礦區資訊，作為劃定禁採區的依據。

為能提出雙方都認可的補償配額，太管處委託工研院逐一對礦區展開鉅細靡遺的相關調查，包含礦主先期探勘費用、礦權申請與礦權維持相關費用、礦場設施評估，如廠房、倉庫、索道、房舍、道路、排水等。除了進行現場的查評外，也利用不同年代的礦區航照及衛星影像資料進行比對分析，以確認各礦場採掘痕跡、開採規模等。綜合各項資料，最後計算出合理的補償金額。

In the end, the then Premier Vincent Hsiao took TNP's side and put an end to the conflict.

In 1998, mining in the 19 sites remaining within the TNP had mostly stopped except for one near the Chongde area. This was because marble is not wear-resistant due to its low hardness. Besides, marble is susceptible to erosion if it's exposed in acid rain for a long time, so eventually it was replaced by the imported granite as a building material.

Even though most mining sites had been shut down by then, TNP was determined to resolve disputes resulting from mining rights and restore the damaged sites, so it called for a meeting on August 10th, 1998 with the 19 mining companies to discuss compensation for a ban on mining. Though the proposal was appealing to them, it marked a formal first step by TNP to the right direction.

Then in 2002, TNP began compensation negotiations with miners. In 2002, TNP initiated meetings with representatives from the Bureau of Mine, Forest Bureau, Xiulin Township Office, and Mining Industry Association as well as the mining companies concerned for negotiating no-mining zones and compensation matters while collecting information and data of the mining areas to determine no-mining zones.

To propose a number of compensation agreeable to both sides, TNP entrusted the Industrial Technology Research Institute for a detailed research into the mining sites for aspects such as the cost of exploitation, application for and renewal of mining rights and facilities assessment in the mining sites. In addition to onsite observations, the ITRI also compared and analyzed the satellite and aerial images of the sites in different time periods for traces and the scope of the mine excavation, in order to calculate a reasonable amount of compensation.

匯德礦區未被破壞的植被 / 林茂耀攝  
The primitive vegetation in Huide Mine./by Mao-yao Lin







因硫磺產業逐漸失去經濟價值，陽管處從1993年起至2005年為止，先後順利協調礦務局取得硫磺谷等6區的礦權。圖為大油坑的硫磺礦/陽管處提供

As the sulfur industry lost its economic value, YMSNP Headquarters had successfully obtained the mining rights in Liuhuanggu and 5 other sites from 1993 to 2005. The sulfur mining site at Dayoukeng./ Provided by YMSNP Headquarters

經過這樣的勤力奔走，2004年，終於有4家礦權業者同意補償協商，太管處努力多年的計畫，終於有了初步的成果。2005年5月，太管處再度召開補償協調會議，與尚未完成協議的12家礦主進行協商，2007年6月，終於完成簽訂所有礦區補償合約。

在這期間，雖仍有礦主針對補償金額等問題進行陳情，或邀民意代表多次參與現場會勘，甚至是公司內部的債務問題，太管處不斷與之進行協調溝通，終在2008年4月完成所有禁採區共16處礦區補償費的發放，總面積達2,570公頃，使太魯閣國家公園區內原本遭到礦場破壞的山林逐漸恢復自然演替，保護野生動植物之棲息環境，而採礦業也在太魯閣國家公園區內沒落，逐漸走入歷史。

### 資源保育 源遠「硫」長

相較於太魯閣國家公園艱辛的「護礦之戰」，陽明山國家公園因經濟利用價值的自然淘汰，在礦權的處理上較為單純。

陽明山國家公園內主要礦產包括煤、硫磺、硫化鐵、瓷土、火粘土、鋁和地熱。其中硫磺礦的發現、開掘與對外輸出，歷經西班牙、荷蘭時代與清代、日治時期到國民政府遷臺，可說是北臺灣歷史最悠久的產業。

大屯火山群活躍的後火山活動形成特殊的地質地形景觀，因此早年在陽明山一帶從事瓷土礦、硫磺礦開採的礦區頗多。日治時期對硫磺礦採集採許可制及自由買賣，1911年(大正十年)起，陽明山硫磺礦進入盛產期，礦場多達27處。直到1953年陽金公路兩側劃為禁採區，有的業者停採，有的業者時斷時續，礦區銳減半數。

因硫磺產業已失去經濟價值，陽管處成立前僅存大油坑礦業尚有少許生產，勉強維持。自1987年起，陽

1989年4月，時任玉管處保育課課長陳隆陞(左3)與業者進行瓦拉米礦區的會勘/玉管處提供

In April 1989, then-Chief of Conservation Section of YMSNP Headquarters Lung-sheng Chen (3rd from the left) had followed some representatives of the mining companies to conduct an investigation on the mining sites in the Walami area./ Provided by YMSNP Headquarters

After such efforts, four companies with mining rights finally accepted the compensation offer in 2004, which marked an initial breakthrough. Then in 2005 another 12 companies agreed on the terms, and soon the entire compensation process was officially completed in June 2007.

During the process, there were obstacles such as petitions by the mining companies regarding the amount of compensation or even the companies' financial difficulties, but TNP was willing to negotiate with them and the efforts paid off in April 2008, when the compensation involving 16 mining sites totaling an area of 2,570 hectares was distributed. Thanks to the efforts, the forests and the animals' habitats were able to recover from the damage, and mining activities in TNP also went into history.

### Conservation vs. Mining in Yangmingshan

Compared to TNP, YMSNP had undergone a much easier fight in revoking the mining rights.

Minerals resources in YMSNP include coal, sulfur, iron sulfide, clay, fire clay, aluminum, and geothermal. In particular, the discovery, excavation and export of sulfur ores can date back to the Spanish and the Dutch rule, the Qing Dynasty and the relocation of the nationalist government. Sulfur mining was arguably the longest standing industry of northern Taiwan.

As volcanic activities in the Datun Volcano Group resulted in peculiar geology and landform, excavation of sulfur and clay used to be quite common in Yangmingshan. During Japanese occupation, loose regulations had facilitated the excavation and trading of sulfur ores. In its heyday in 1911, there were as many as 27 mining sites. It was not until 1953 when both sides of Yangjin Highway were designated as no-mining zones that the mining business took a downturn.

As the sulfur industry has lost its economic value, there were only a few players staying in business before the establishment of YMSNP. Starting in 1987, the park began

管處積極開始辦理國有土地撥用，與業者進行補償協調，從1993年起至2005年為止，先後順利協調礦務局取得硫磺谷、龍鳳谷、馬槽、大油坑、冷水坑、萬里等地區的私有礦權。

### 復育生機 洞燭機先

玉山國家公園蘊藏大理石、白雲石、蛇紋石、銅礦、滑石、石綿等礦產，1983年規劃時，預定範圍內原有47礦區，另有1處銅礦國家保留區，總計約五千餘公頃。其中瓦拉米地區有9家礦區，業者僅先探礦，原擬新中橫公路玉里——玉山線開闢後，就開始大力開採。

「瓦拉米地區存有紀錄的動植物多達900多種，又是秀姑巒溪主要集水區，除保留原住民部落，尚有日據八通關越嶺道與駐在所遺址。」玉管處前處長陳隆陞說：「業者採礦的經濟利益，根本比不上對整個水土保持以及人文景觀的破壞，因為原有的美麗景致與自然資源都不會再回頭，也無法補救。」

1985年玉山國家公園正式成立後，經過環評結果，行政院於12月決議放棄玉里——玉山線的闢建計畫，採礦業者錯打如意算盤，遂向經濟部礦務局陳情。

依據礦業法第16條規定：「採礦權以20年為限，期滿後得申請經濟部核准展期20年。」礦務局以瓦拉米地區色白如玉的大理岩品質精良、蘊藏量豐富，具開採價值，而大理石產銷可增加政府外匯存底，主張不宜劃定禁採區。玉管處只能步步為營，先將瓦拉米地區劃為一般管制區，限制採礦，同時保留業者的權利。

玉管處於1997年開始與礦業權者進行協調補償，9家業者聯合要求上億元賠償，幾番交涉後只賠償已完成的地上設備與所繳礦稅，共三千七百多萬。皇天不負苦心人，瓦拉米終於在這一年被劃入禁採區，4月2日公告，爾後逐年編列補償預算，完成註銷礦權，並於2000年劃設為生態保護區。這是國家公園最嚴格的保護層級，一般人進入生態區都要向管理處提出申請，更別說要採礦或開闢公路了。現在大家提到瓦拉米，想到的是自然步道、臺灣黑熊的家，殊不知這片淨土差點淪為寸草不生的荒漠。

實踐了一位國家公園從業人員對保護國家珍貴自然景觀與人文史蹟的承諾，陳隆陞欣慰地做下總結：「民眾也都慶幸瓦拉米地區能被保護下來，讓當地的觀光產業、水土保持愈來愈好。我們可藉此認定，永續觀光的價值，遠比礦物的開發還要來得珍貴，值得永久萬藏。」



to carry out the national land appropriation and the related compensation. From 1993 to 2005, it successfully obtained the mining rights in Liuhuanggu, Longfenggu, Macao, Dayoukeng, Lengshuikeng and Wanli.

### Preemptive Action against Mining in Yushan

Marble, dolomite, serpentine, copper, talcum, asbestos and other mineral resources are present in YSNP. During the planning stage of YSNP in 1983, there were still 47 mining sites and a national reserve of copper ore. In particular, there were 9 sites in the Walami area, where the miners were just prospecting for ores there for subsequent excavations.

"The recorded number of species in the Walami area is over 900. The area is also the catchment area of Siouguluan River and the historic sites of the Japanese Occupation Era Batongguan Traversing Trail. Former Director of YSNP Headquarters, Mr. Lung-sheng Chen noted, "the profits generated from mining could never ever make up for the damage done to the water, land, landscape, and the natural resources."

After the establishment of YSNP in 1985 and the environmental assessment, the government decided to call off the road construction from Yuli to Yushan. This has led to the petitions by the mining companies in that area.

Article 16 of the Mining Act states: "Mining right is valid for 20 years, which can be extended for another 20 years after the expiration. The Bureau of Mine is opposed to the designation of a no-mining zone on grounds that, first, the marble in the Walami area is of great quality and quantity, so it's worth excavating, and second, the Marble in Taroko can be exported to increase Taiwan's foreign reserves. In response to this, the YSNP designated the Walami area as an Existing Use Area to regulate mining activities while retaining the rights of the mining companies.

YSNP started its compensation talks with the mining companies in 1997, and nine of the companies demanded over hundreds of millions of compensation. The number was decreased to 37 million after a few rounds of negotiations and eventually the Walami area was finally designated into a no-mining zone. In 2000, it was upgraded to an ecological protected area, meaning the highest level of protection that prohibits any intrusive acts. Now, when people talk about Walami, they immediately think of natural trails or Formosan Black Bears, without realizing its potential doom as a barren place in early days.

Fulfilling the role and the promise of a conservationist in safeguarding the precious natural landscape and cultural heritage, Chen concluded in a pleasant tone, "The public is happy to see the Walami area being protected and the tourism industry booming. We are thus confident to say that the value of sustainable tourism far exceeds that of mineral exploitation."

