

山林

保育的謳歌與哀歌

Eulogy and Elegy of Forest Protection

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森林是上天給予的重要禮物，卻曾有段迷惘的歲月 / 齊柏林攝
Forests in Taiwan is a gift given by God, but they once had a miserable time. /by Po-lin Chi

延續上篇文章的主題，台灣人始終明白中海拔森林有其重要價值，也一直把森林視為上天給與的珍貴禮物。只不過，現在是從保育角度去珍惜，在過去，則是從經濟價值去看待。

曾經，台灣的蒼鬱之林、那一棵棵屹立千年的巨木，珍貴的木材大規模輸出海外，撐起了戰後台灣發展經濟的重責大任，卻也因為森林大面積的開發與砍伐少了天然屏障的保護，雨水直接沖刷地表，形成的「土石流」，造成了難以挽回的傷害。

斧下留林！

像是1959年「八七水災」、1960年「八一水災」及1963年的葛樂禮颱風，失去植被的山林變成洶湧泥石流傾瀉而下，帶來嚴重死傷，人們才開始檢討過度開發山林所帶來的後遺症。多年後台灣終於頒布禁伐令，才終止了森林裡的伐木聲。

As discussed in the previous article, people in Taiwan have long been aware of the significance of forests at mid-altitude, and have regarded them as a precious gift by God. A major difference, though, is that now people know the importance of forest conservation, while in the past, they only cared about the economic value of forests.

Forests in Taiwan once had a miserable time. Giant trees were chopped down and exported overseas in large scale. Such heavy logging, though key to Taiwan's economic income at that time, finally led to mudslides, causing irreparable damages.

Stop It!

Soon there was a huge price to pay: the floods in 1959 and 1960, along with Typhoon Gloria in 1963 brought huge devastation to Taiwan. Forests without much vegetation became mudslides that came pouring down and led to uncountable casualties and trauma. Since then, people started to reflect upon the adverse effects of over-exploitation. Government outlawed the logging of natural forests after many years, thus putting an end to massive logging.

原始林的生態受破壞後，欲仰賴自然演替回復恐需百年以上時間 / Peter 攝
Once the ecology in natural forests was destroyed, it might take more than a hundred years to recover forests' original state by the "all natural" approach / by Peter



談起台灣的山林發展史不僅只於伐木，還有大範圍的山林開發。原應屬於霧林帶的中高海拔地區，退輔會輔導榮民上山種植更有經濟價值的高山蔬果、高山茶，不惜大興土木。當然，山中的氣候溫度絕佳，裊裊霧氣帶來的養分，種植出清甜的蔬果與舉世聞名的高山茶，那又是時代變遷造就出的一段山林開發史。

無論是伐木還是開墾，對錯該如何看待，長久以來都有人討論、檢討與深思。台灣國家公園自80年代陸續成立後，劃分園區範圍的森林都受到最高層級的保護，國家公園也陸續收回開墾地、農地，或是地質容易崩坍的山坡地。

該放任還是干預？

「以太魯閣國家公園為例，低海拔地區因為峽谷地形成為天然屏障，開發較低，但在中海拔山區像是西寶一帶，就有過度開墾留下的後遺症。」東華大學助理教授許育誠說。「太魯閣國家公園一直在做農業用地收回，像是陶塞溪流域蓮花池、梅園及竹村一帶的開墾地，本來是當初開拓中橫公路的退役軍人居於此，2006年完成土地的徵收。目前，國家公園管理處打算將蓮花池規劃成為環境教育與生態旅遊的據點，也在進行生態環境改變與周邊動物族群變動的研究所。」

蓮花池一帶有許多廢棄房舍，芒草蔓生，太管處曾試圖移除芒草種植其他樹種，但成效並不理想。「其實，讓蓮花池維持現況也很好，在這裡能觀察到許多動植物，令人驚喜，我們就發現有一群粉紅鸚嘴鴨，已經把蓮花池當成棲地，這群粉紅鸚嘴鴨甚至已經演化成另一個分支族群。」

無論是收回開墾地、伐木後種植的人造林、或者是砍去巨木後造成的崩場地，國家公園對於區域內的中海拔森林的復育計畫，「其實沒有絕對該怎麼做，應該是因地制宜，有些地方該完全放任自然，特殊情況下或許該進行人為生態復育。」惠蓀林場場長邱清安說。畢竟，政府和人民賦予國家公園自然保育、環境教育的任務，而不需負責經濟林木生產，這是國家公園先天上的優勢，但也意味著在保育、環境教育、遊憩上的重責大任。

「國家公園對林木資源的經營管理，我想，還是會偏向於保護保存的概念，不過也要逐步全面性的資源清查，瞭解生態系統的功能運作及監測。」

邱場長說，以國家公園境內有面積不小的日本柳杉造林地而言，從經濟林觀點來看，目前大都已無撫育措施且生長停滯，未來國家公園是否放任這些人工林

Logging is, however, not the only disgrace in Taiwan's history of forest development. There were also instances where the Veterans Affairs Commission directed large-scale constructions on the mountains to offer assistance to veterans to grow high mountain tea and vegetables of higher economic value. The favorable conditions on the mountains did give rise to the world-renowned high mountain tea, fruits and vegetables later on.

In fact, people have taken different perspectives on either logging or forest development. Fortunately, the establishment of national parks means that forests in the designated park area could finally receive adequate protection. In addition, plowlands, farmlands and sloping lands that are prone to collapse have also been reclaimed.

To Intervene or Not to Intervene?

"Take TNP, the low-altitude areas there are less exploited thanks to the natural barrier of the gorges. By contrast, mid-altitude areas like Xibao are not that lucky and have been suffering from the consequences of over-cultivation," said Y. Hsu. "TNP has been reclaiming farmlands around Lianhua Pond, Meiyuan and Zhucun, where the veterans who built the Central Cross-Island H'way used to live. Land expropriation there was completed in 2006, and now TNP Headquarters plans to designate Lianhua Pond as a place for ecotourism as well as environmental education and research.

As there are many abandoned houses and tall silver grass around Lianhua Pond, TNP once attempted to replace the silver grass with other plants but to no avail. "Actually it's not too bad leaving the pond as it is. We've surprisingly found some *Paradoxornis webbianus* staying there as their habitat."

For the restoration program aimed at reclaimed plowlands, man-made forests or collapsed land due to deforestation, there is no set rule to follow. "Rather, actions should be taken to suit the specific conditions of each place," said Chiu. After all, the government and the people have entrusted national parks with duties of conservation and environmental education instead of developing valuable timber. This may be perceived as both an advantage and a great responsibility in so many respects.

"So far, most natural parks are more inclined to manage forests from the point of conservation and protection, but a comprehensive resource census is essential to see the functions and operations of the entire ecosystem within the parks."

Chiu cited the Japanese Cedar plantation in national parks, which, from the standpoint of commercial forest, is no longer cultivated. Therefore, alternatives to the management of these forests should be contemplated.

自然演替或該做些研究與經營作為，值得思考。

但人為對自然的嚴重干擾，造成一些生態系的結構與功能退化，是否要引用復育生態學的知識與技術，也應該考慮。「在雪霸國家公園武陵地區的台灣櫻花鉤吻鮭棲地，沿岸開發嚴重，若能儘早恢復沿岸植群，對鮭魚保育具有正面幫助。倘若依賴自然演替恢復為原有的老熟天然林，恐需200年以上的時間，特別是殼斗科的大粒種子，只能靠嚙齒類動物帶回，很難靠風力或鳥類散播進來。從復育生態學的角度來看，可以擬定復育計畫，調查當地環境因子與殘存植群，再採集當地種源予以育苗，將多樣的原生樹種回植於收回的廢耕地上，經過1、2年的撫育再放手讓老天爺接手去自然演替，讓不同樹種自由競爭，形成近自然林，也逐步恢復原有植群結構與功能。」

這種森林生態復育的做法在國外已有許多案例，恢復為原有植群，可以大幅縮減三分之二甚至四分之三的時間，雖然有學者強調國家公園應該要完全放任自然，但對某些人為造成的傷害，或許是需要人為力量

Also worth considering is the application of the knowledge and technique from the field of restoration ecology to remedy some parts of the weakened ecosystem. "Riversides along the habitat for Formosan Landlocked Salmon in Wuling area, for instance, have been over cultivated. Therefore, if the vegetation there could be recovered, it could be a boost to the conservation of the endangered salmon. Otherwise, it could take up to 200 years for the forests to naturally recover. It seems that a restoration program initiated by humans are necessary, starting from the research on the remaining vegetation, the collection of seeds and the planting of the native trees back to the reclaimed plowlands. Continue the cultivation for a year or two, then leave the trees to their own devices, and allow them to form forests of their own and even compete for survival."

There have been many similar cases of forest restoration elsewhere. And this type of restoration can save up to 2/3 or even 3/4 of the total restoration time required by the "all natural" approach. In such cases, a human-aided

山林的悲歌，不只在於伐木，還有大範圍的農業開發 / 齊柏林攝
Sorrows of mountains are not only the logging, but also large-scale agricultural development. /by Po-lin Chi



介入來彌補，「只是生態復育的工作並非一年即可完成，應該要謹慎小心、建立在科學基礎之上，同時更需要國家公園從業人員懷抱著理想來投入。」邱場長語重心長的說。

守得霧開重保育

「人類，其實需要的不多，但想要的很多。」長久以來，對於台灣山林投入心血的靜宜大學生態學系楊國禎教授則指出，「台灣在發展的過程中，總是頭痛醫頭，腳痛醫腳，遇到問題才要解決、才要收尾，這時往往就來不及了。我們缺乏一個具有總體規劃設計的單位，因為發展中總以都會規劃為核心思考。」

楊教授認為，若終究只以人類的角度與生活方式去思考，只能等事情發生了，才從經驗教育去搶救，那就失去了真正為山林思考的「理性」價值。「國家公園的解說教育，正是連接『都會』與『自然』的橋梁，但橋梁的功用，終究還是只有輔助，要保護山林，就應要學習將自然思考的方式帶入都會。」不然，保育從業人員再怎麼克盡其力，守護的力量還是會趕不上破壞的速度。

restoration may be justified. "Still, caution must be taken and a scientific basis should be in place. On top of that, we need like-minded people to carry out the tasks," Chiu suggested.

Rule of Thumb: Conservation

"Sometimes people just want more than they really need." So noted Prof. Kuoh-cheng Yang of Dept. of Ecology, Providence Univ. "In Taiwan, we always provide band aid solutions to problems and lack a coordinating unit that offers a well-balanced development plan. The fact is that we've been placing too much focus on the metropolitan area."

Yang, who has long been devoted to the conservation of Taiwan's forests, said if the problematic mindset remains, remedies will always come too late. "The interpretation education offered by our national parks serves as a bridge between the cities and the Nature. But we should not rely solely on that bridge; rather, we should learn to incorporate the idea of forest protection in our everyday life. Otherwise, human destruction to the forests will always outpace the development of forest conservation.



中海拔山區的開發，曾發生在霧林帶那場人類與自然的戰役，在環保意識抬頭的現今，那段慘烈的過去，一直是台灣環境保育從業人員必須謹記在心、甚至不斷努力彌補的方向。從國家公園的角度去看，要做的，能做的，就是不斷加強國家公園的保育力道與範圍。

國立東華大學榮譽教授徐國士也表示，在國家公園的設立與限制下，已多少保護了其範圍內的林業資源，然而，生態保育不應只建構在法令條文的約束，要中在學術與公益的考量取得兼顧非易事，故需要有共識的領導人來策劃執行。

2011年是聯合國訂定的「國際森林年」。根據聯合國最新出版、針對全球森林狀態的雙年度報告中指出，全球森林砍伐和退化率已出現放緩態勢。國際森林年亦通過新的策略計劃，包括至2020止，藉由推動森林和林業永續管理的政策，達到所有天然棲地消失退化速率顯著停緩的目標，以維護生物多樣性。

保護森林已成為全球各國的共識，走過伐木、濫墾之殤的台灣，在這片森林保育浪潮中，也絕不會缺席。因為，台灣山林保育已經走出迷霧，找到共同的方向，唯一的信念就是持續做下去，保護這片我們摯愛的山林，讓哀歌不會在迷霧森林中，幽幽響起。🌲

The over-exploitation of forests and cloud forests may be a thing of the past, but the lesson must be learned and improvement must be made. That is exactly where national parks come in and fulfill their functions.

K. Hsu also approves of the work of Taiwan's national parks, which have more or less protected the forests under their respective jurisdiction. Nonetheless, conservation should never end up as the responsibility by the authorities. Rather, it can be successful only when support from the academia as well as the general public is in place.

The year of 2011 is designated as "International Year of Forests" by United Nations. According to United Nations, rate of global deforestation and forest degeneration is slowing down. Also, by promoting sustainable management of forestry policies, United Nations hopes that the speed of disappearance of natural habitats can be slowed.

To protect forests is a common goal around the world, and Taiwan will not draw back. On a happier note, there has been a clear direction for forest conservation in Taiwan. What we should do next is to keep the faith in the good cause and strive to protect the forests that were once so mournfully hurt. 🌲



1-2 高山開發過度影響生態，因此國家公園有計畫的回收開墾地，進行復育。圖1為2006年雪霸國家公園徵收8.1公頃的私有菜地。圖2為2010年的現況，經4年的休養生息後，裸露的土壤逐漸長出綠色的植被。/ 雪霸國家公園管理處提供，張燕伶攝
Over-exploitation on mountains had damaged the ecology, so National Parks have reclaimed plowlands and employed restoration program as planned. / Photo provided by SPNP Headquarters, taken by Yen-ling Chang

3. 國家公園可因地制宜，擬定復育計畫，採集當地種源予以育苗、回植。/ 賴宛靖攝
National Parks' restoration program should be taken to suit the specific conditions of each place, such as collecting local seeds and cultivate them. / by Wan-Ching Lai



