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Comments: In 1993, I was living in Port Protection, located on the north end of Prince of Wales Island, Southeast Alaska. I joined the Tongass Cave Project, a summer scheduled project of the National Speleological Society with grotto members from across the U.S. and beyond. "Its purpose is the discovery, exploration, survey, conservation and study of karst and caves in Southeast Alaska. In pursuance of a cooperative agreement with the Forest Service, the TCP worked with them on these expeditions."

Kevin Allred, Steve Lewis, and Pete Smith were the TCP co-directors in 1993, coordinating cave surveys on POWIE VII (Prince of Wales Island) and DIE III (Dall Island) carried out by grotto members. Cave surveys were prioritized by the immediacy of pending timber harvests. The sheer number of karst formations in proposed harvest units requiring survey, plus new finds across the Tongass, far exceeded the group's ability each summer.

I had zero caving experience, however, my contribution was keying in the completed daily cave survey data; other members later creating and publishing "over 40 cave maps" and "many reports". Learning the basics of spelunking, I also participated in the daily cave surveys.

In the final days of POWIE VII, TCP members were invited to a special screening of slides taken by a group of American geologists who had recently returned from a tour of China's karst formations. They had observed the resulting devastation decades prior following clear-cut timber harvests during Chairman Mao Zedong's reign, where erosion and drought changed the landscape-the karst caves were bare of any surrounding forest canopy, understory, moss, lichens or trickling water, a landscape of dusty soils. The slides featured families, trying to survive a subsistence lifestyle for their family and farm animals. Their numerous children daily hiked for hours scouring the clearcuts for remnant tree roots, limbs and bark, while others carried buckets great distances in search of water.

There are numerous articles online detailing Chairman Mao's "Struggle Against Nature", including:
"Synopsis - Combating the Fragile Karst Environment in Guizhou, China" (Ambio, Vol. 35, No. 2, Month 2006, pp. 94-96)

China in the early 1950s, during Mao's "Great Leap Forward", "Cultural Revolution" and into the early 1980s (he died in 1976), completed the "three great cuttings", clearcutting a large percentage of forests, including karst landscapes, carrying out Mao's"struggle against nature", resulting in deforestation and desertification, still evident today. The forests were cut and the timber was used to support the "steel-making campaign", Mao's effort to forge steel and fuel backyard furnaces across China. The nation learned quickly their virgin forest wood did not burn hot enough to make steel but they were united as a national to continue Mao's campaign and continued harvesting timber.

"In recent years, ecologists and geographers, together with the local people, supported mainly by various levels of government, have undertaken work to combat further degradation of the fragile karst environment; e.g. selecting adequate tree species, forest plantations, and developing models in order to control rock desertification as well as promoting development of the local economy. Some progress has been made and is described in what follows.

"Due to the high proportion of bare rocks, scattered and thin soil cover, and frequent technical drought, vegetation restoration is extremely difficult in karst areas (6-10). Selecting suitable tree species is a major key to environmental reconstruction.

"At the very start of activities to control rock desertification, efforts were made to terrace the karst slopes to grow economic forests. But this strategy was criticized by some scientists and private companies. It was considered a waste of money and manpower. It was argued that terracing the karst slopes destroys karst ecosystems and that there is not enough soil to fill in the ''room'' created by the man-made embankment and to provide flat fields for cultivation. It was seen as more practical and profitable to plant trees directly in the small holes, gullies, troughs, and even cracks of karst landscape with some soil.

"Even in Guizhou province, ecological conditions change greatly from place to place and from altitude to altitude. Undoubtedly, the choice of tree species and development models should be in line with local conditions.

"Some scientists hold that the karst landscape in Guizhou is the typical representative of cone karst landform and of worldwide value. Application for entry on UNESCO's list of World Natural Heritage Sites should be considered (15). In which case, the karst landscapes in Guizhou should be strictly protected in order to keep their natural uniqueness and integrity, or at the very least they should be prevented from further environmental degradation.

"Karst landscapes-regions characterized by sinkholes, caves, springs, underground rivers, and slowly dissolving bedrock-constitute about 25% of the world's land surface (1). Although some karst land- scapes are attractive and of aesthetic value, most of them are recognized as fragile zones unsuitable as human habitats-mainly due to extremely poor soil cover, or a complete lack of soil, and rapid water loss.
"China is one of the countries featuring extensive karst areas, with about 23% of its land area, nearly 2 000 000 km2, covered by open and covered karst rocks (2). These areas of China are mainly concentrated in the southwest, in the provinces of Guizhou, Yunnan, and Guangxi (Fig.1). About 73.6% of the total area of the province of Guizhou is made up of karst landscapes. For this reason, Guizhou has been named the ''Karst province'' of China (3).

"Due to the extremely fragile environment and the existence of a large number of underground caves, it is much more difficult and expensive to build roads and highways in karst areas than in other areas. This has confined Guizhou province in an almost closed state for a long time in history. Development of the province has therefore been seriously limited. …

"In addition there has been an occurrence of detrimental human activities, e.g. over-logging and steep-slope farming, in the province. This is mainly due to over-population and extreme poverty. As a consequence there has been a decrease in vegetation cover, forest and shrub in the karst areas; surface soil has deteriorated due to intensified soil erosion; and larger and larger surface areas have become nearly naked. The stones seem to ''have grown,'' as the local people say. This process of degradation of karst ecosystems is called ''rock-desertification'' (Shi Mo Hua) in Southwest China (3). Owing to the enormous difficulty in managing and controlling this phenomenon, rock desertification in karst areas is also called the ''cancer of the earth''(3).

"In recent years, ecologists and geographers, together with the local people, supported mainly by various levels of government, have undertaken work to combat further degradation of the fragile karst environment; e.g. selecting adequate tree species, forest plantations, and developing models in order to control rock desertification as well as promoting development of the local economy."

The Forest Service can verify my 1993 Tongass Cave Project recount of the geologists' China karst slideshow through Jim Baichtal, or the three Tongass Cave Project co-directors named above.

I do NOT support any changes concerning karst to the existing Tongass National Forest Land and Resource Management Plan. Rather, the Forest Service should continue to enlist karst specialists to complete the inventory of all karst features Tongass-wide. Further, seemingly standalone karst formations should be identified and surveyed to better understand the relationship of below surface hydrological dynamics between karst

formations, efforts that could prove impossible with any changes to existing management plans. These combined effort could result in an accurate and up-to-date inventory and understanding, safeguarding Southeast Alaska karst resources in their natural environment, in perpetuity.

We must all learn from China's devastating land use management decades ago negatively impacting not only humans but their forests and karst resources from unwise timber harvests, especially as worldwide the planet is experiencing warming climates and erratic weather, including Southeast Alaska. Land-use managers worldwide must be vigilant and proactive about the preservation of karst and living forest resources-drought and desertification know no boundaries as China, the U.S., and others worldwide can attest.