



OBITUARY

THE “ADOPT-A-TREE” STRATEGY – A LEGACY OF SCOTT A. MORI (1941-2020)

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INTRODUCTION

Life can be short, especially for tropical biologists studying natural history during field explorations in remote regions, often with little assistance when not hosted at a well-equipped research field station. Scott A. Mori (1941-2020) knew that very well during his long, busy and risky academic career as a plant collector, and a renowned taxonomist of the Brazil-nut tree family (Lecythidaceae), first during his graduate and postdoctoral studies at the University of Wisconsin-Madison, and then at New York Botanical Garden (Boom 2020; Naczi 2008). Scott Mori's research domain was Ecological Taxonomy – conceived as an analogue of Ecological Anthropology (Kottak 1999; Vayda and McCay 1975) – given the importance he always devoted to the biology, ecology (especially animal-plant interactions – pollination, frugivory and seed dispersal), and the various usages to which humans put the Lecythidaceae plants that he collected and described in Central and South America for more than 40 years (Mori and Lepsch-Cunha 1995; Mori and Prance 1993; Mori et al. 1997, 2001, 2002, 2010). As an example, his first single author article was about the distribution, ecology and uses of several tree species in the genus *Lecythis* (Mori 1970).

The Brazil-nut tree family is diverse as well as hyperdominant in the Amazonian forests (Poncy et al. 2001; ter Steege et al. 2000, 2013, 2020). Accordingly, its taxonomic revision required the dedication of Scott's entire life to accomplish such a Herculean task. It involved “careful and selective collection” (*sensu* Naczi 2008) of fertile plants by ascending trees during a period when only athletic, intrepid, and fearless collectors and botanists would harvest (fertile) vouchers using rope loops attached to the foot, so-called French climbing “griffes” or spikes (Fig. 1), and Swiss Tree Grippers (Brockelman 1997; Mori 1984; Mori and Prance 1987). Scott was especially aware of his own security while hugging trees, as none did, before it became

popular among treetop climbers, and canopy explorers. In his somehow testamentary, last book (Mori et al. 2011), Scott shared his life experiences, and passed on the many tips he had learned in the field. He knew perhaps better than anyone the hazards and risks that plant collectors – and others – face in ascending into, and descending from the canopy. He wished students to be well prepared to work efficiently, and travel safely to and within tropical forests by all means. But above all, Scott was willing to spread his immense knowledge of the Brazil-nut tree family (Mori et al. 2007, 2010), therefore contributing to the conservation of his chosen plant family, and of the rainforests he adopted. Finally, trees treated him well despite the unavoidable damages spikes do to trunks and bark (de Castilho et al. 2006). Scott gave it back to the forest and its trees, being a fervent adept of the “Adopt-a-forest” strategy (Laurance 2008) in the village of Saül in Central French Guiana (Mori 1987), now the northern tip of the Parc Amazonien de Guyane, the largest continental protected area of France and the European Community (Anonymous 2007). Between 1976-2002, in Guyana, Suriname, and then in French Guiana, Scott A. Mori had inventoried the flora (Mori et al. 2002; Mori et al. 1997), studied seed dispersal by wind (Mori and Brown 1994), and contributed considerably to improving our knowledge of bat/plant interactions in the Guianas (Lobova et al. 2009; Simmons et al. 2007).

Scott Mori's PhD (1974) director was Hugh H. Iltis who also directed Gottlieb Noamesi's PhD thesis on the Xylocarpaceae, which includes *Carapa* and *Xylocarpus* (Noamesi 1958), Al Gentry's MSc (1969), recording the later discovery of and description of a new *Carapa* species (Gentry and Dodson 1988) and Jacquelyn Kalluyunki's MS (1974) with whom Scott studied the phenology of *Gustavia superba* (Lecythidaceae) on Barro Colorado Island (Mori and Kallunki 1976). Scott was the only taxonomist I have known who could collect plants, and eventually complete his description adding information about trunk, phenology,





Figure 1. Scott Mori climbing with French spikes in Paracou, French Guiana, November 2006 (Foto: Pierre-Michel Forget)

habitat, flower biology especially pollination, fruit and seed biology and ecology especially seed dispersal by animals, as well as usages for humans, whether or not with economical values. As a postdoc at the Smithsonian Tropical Research Institute in Panama, Scott became my modern 'hybrid' model of an ecological botanist, as I was trying to learn everything about the few trees I adopted during my early-career, while an academic life started to unroll in front of me. Reading his papers in the late '80s, I early learned that several taxa may be hidden behind one given accepted species name, even though published (Mori 1978). I appreciated, from his example, that a student must first know his study organisms well before starting to focus on their ecology. It seemed pre-ordained that I should be inspired by Scott Mori, my ecological systematic hero, given that I shared with him a strong interest in the taxonomy and identification of trees in the field, and the ecology and uses of rodent-dispersed seeds of tree species (*Carapa*, Meliaceae; *Bertholletia*, *Gustavia*, Lecythidaceae).

Though, in 1986-87, I visited the ORSTOM outstation in Saül - the Eaux Claires field camp where Scott used to stay - and walked the same 'layons' (i.e. trails) of Mont La Fumée, Boucle des Gros Arbres, Grand Boeuf mort, Mont

Galbao, Crique Limonade, to name but a few, in the surrounding forest, Scott and I only overlapped in the Guianas much later. We first met in April 2002, and briefly visited Brownsberg Natural Park (BNP) after the completion of the IUCN-CI workshop on the Guianas in Paramaribo (Huber et al. 2002). As we were about to park at the STINASU Research Station, I have a vivid memory of the sudden and vibrant excitement of Scott who literally jumped out of the mini-bus after he spotted from his window, right in front of his nose, the blooming pink flowers of *Corythophora labriculata* (Lecythidaceae). This was the same individual from which he had collected fruit in September 1976 (Mori 2002). Our path finally crossed again in November 2006 at Nouragues (Bongers et al. 2001) where Scott finally trained me to climb trees using spikes, whereas I had been, preferentially, a single-rope tree climber (Picart et al. 2014). Despite the damage to the bark I inflicted on one of my adopted trees (Forget and Jansen 2007; Forget 1996), I was glad, however, finally to share my adopted forest with him, and grateful for his help with a "careful and selective collection" of a fertile *Carapa surinamensis* (formerly *C. procera*) in the New York Botanical Garden collection (NYBG 2006).

Mori and Lepsch-Cunha (1995) mentioned the taxonomic problems and difficulties that everyone may face while determining Lecythidaceae using "vegetative features alone, especially the leaves" (p. 14), adding that "seedlings are extremely difficult to identify to species" (p. 16). This is particularly true in the genus *Lecythis* and *Eschweilera* that produce dense, intermingled populations of large-seeded and shade-tolerant seedling carpets underneath adult trees, and in the understory (pers. obs.) after being dispersed by bats (Lobova et al. 2009). Where students cannot accurately identify offspring seedlings they would be well advised to select a study species for which this is not a problem, picking a species, of which the life-history and ecological traits allow them to avoid counting two or more species as one. Nonetheless, a student keen to study the ecology of tropical trees in the 80s and early 90s at a given site would have been well advised not to adopt the Lecythidaceae, or at least to pick the alternative "Adopt-a-tree" strategy by selecting few well-known species. That is mostly the reason why the ecology of Lecythidaceae is still not well known apart for the example of the large-seeded, rodent-dispersed *Gustavia superba* in Central America (Aide 1991; Dalling et al. 1997; Dalling and Harms 1999; Forget 1992; Mori 1978; Mori and Kallunki 1976; Sork 1985, 1987) and *Bertholletia excelsa* in South America (Haugaasen et al. 2010; Haugaasen et al. 2012; Kainer et al. 1999a, 1999b; Mori 1992; Mori and Prance 1990; Myers et al. 2000; Peres et al. 2003; Trivedi et al. 2004; Tsou and Mori 2002; Wadt et al. 2008; Zuidema and Boot 2002).

Today, one can strongly recommend students follow Scott's "Adopt-a-forest" strategy (Mori et al. 2011) because time is short, and should not be wasted while "safely" studying the diversity, ecology and conservation of tropical rainforests. But, for the taxonomic reasons listed above, one would also encourage them to go for the "Adopt-a-tree" strategy. Having adopted the *Carapa* tree genus, it appeared that several *Carapa* species could also be hidden behind one epithet, several species being now recognized, each with contrasting life-history traits (Forget et al. 2009; Kenfack 2011a, 2011b). The testamentary message of Scott Mori was that we need good floras and monographs in order to study rainforest ecology, and for testing hypotheses. Unfortunately, at present, tropical (plant) ecologists far too often neglect taxonomy, and do not have the time to check the correct identity of their study trees, especially if sterile. One single well-identified tree species might be essential, however, for the protection and conservation of an entire rainforest, especially when the tree species is important for both wildlife and human economy, as is the case for the Brazil-nut tree *Bertholletia excelsa* in the Amazon (Chiriboga-Arroyo et al. in press; Sales et al. in press).

Life is indeed short, in particular for scientists who often travel to the tropics, absorbed by their intense daily routines and agenda within ecological systematics, climbing trees to collect plants, revising their taxonomy, or walking the understory to observe animals consuming fruit and dispersing seeds, and surveying the dynamics of established seedlings for decades. At some point, different individuals may briefly meet, a couple of days at a scientific conference, a workshop, in the corridors of their respective institutions, eventually in the field, climbing and hugging trees. These unique moments will never be forgotten.

Scott died on 12 August 2020; he leaves behind his wife Carol Gracie. He will be missed not only by his family, friends, and colleagues at NYBG, but by the tropical ecology community at large.

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