

Supplementary Information 1

Article title: Landscape disturbance and change lead to impoverishment and homogenization of butterfly assemblages in Southern Mexico

Journal name: Neotropical Entomology

Authors: Ulises Hernández-Hernández, Arcángel Molina-Martínez*, Jorge L. León-Cortés*, César A. Sandoval-Ruiz

Author for correspondence: Facultad de Medicina Veterinaria y Zootecnia, Benemérita Universidad Autónoma de Puebla, Tecamachalco, Puebla, México. arcangel.molina@correo.buap.mx

Departamento de Conservación de la Biodiversidad, El Colegio de la Frontera Sur, San Cristóbal de las Casas, Chiapas, México. jleon@ecosur.mx

Description of the habitats registered in the assessed landscapes.

Tree fallow: These sites have an arboreal stratum of approximately 15-20 years old, with trees with thin trunks and ranging in height from 3-7 m. Around the Tree fallow the predominant land use is cattle ranching. The species present in these sites are mainly *Acacia spp.* (Quebrachales), *Gliricidia sepium* (Cocuite), *Ehretia tenuifolia* (Roble), *Bursera simaruba* (Palo mulato) and endemic species such as *Randia monantha* (Cruetillo).

Shrubby fallow: Sites with a vegetation of 4 – 7 years old. The shrub layer height ranging from 1-2 m with species such as: *Gliricidia sepium* (Cocuite), *Bauhinia macranthera* (Pata de cabra), *Tecoma stans* (Coquillo or Tronadora), and a large amount of grasses.

Pasture fields: These are sites dedicated to livestock farming with different species of grasses (Fabacea) as the main vegetation cover. A livestock rotation system is common to encourage grass growth.

Arboreal pasture: Sites used for livestock breeding and feeding. They have a herbaceous layer dominated by grasses (Fabaceae) and a tree layer mainly composed with species such as: *Acacia spp.* (Quebrachales) or *Gliricidia sepium* (Cocuite).

Rainfed crops: Sites that follow the rainy season regime for crops, generally peanuts, maize or milpa system (maize, beans and squash). It is common that the sites are not cultivated continuously, the land is left to rest

between seasons, which promotes the development of a herbaceous cover with abundant flowers that are removed when the site is used again for cultivation.

Irrigated crops: Crops that have access to water all year. Commonly grown: maize, beans, squash, chilli and sugar cane. Commonly these sites have irrigation channels or electric sprinklers.

Water body: There is one permanent tributary of water which has a variable width and depth. Its current is slow and on the banks there are numerous *Ficus spp.* trees (Higueras). There are numerous temporary tributaries that only have water during the rainy season.

Fruit crops: These are plots of 2 to 5 hectares, where economically important fruit plants such as papaya (*Carica papaya*), mangoes (*Mangifera indica*), bananas (*Musa paradisiaca*), tamarind (*Tamarindus indica*), lemon (*Citrus limon*) and watermelons (*Citrullus lanatus*) are cultivated. Large quantities of water, pesticides, herbicides and other chemicals are applied.

Roads: Roads used to travel between sites. There are also secondary roads made by the inhabitants and farmers of the region to access their plots. From a spatial point of view, they are clearly delimited by fences on ejido land or private property.

Urban áreas: These are areas of human settlements, where vegetation is severely diminished. There are constructions and paved roads. It is common to find orchards and backyard farms, which still preserve few elements of original vegetation.

Agropasture: Rotation system of crop and cattle. At the end of the harvest cycle, cattle is introduced to feed on the unused parts of the cultivated plants in order to optimise space and resources.