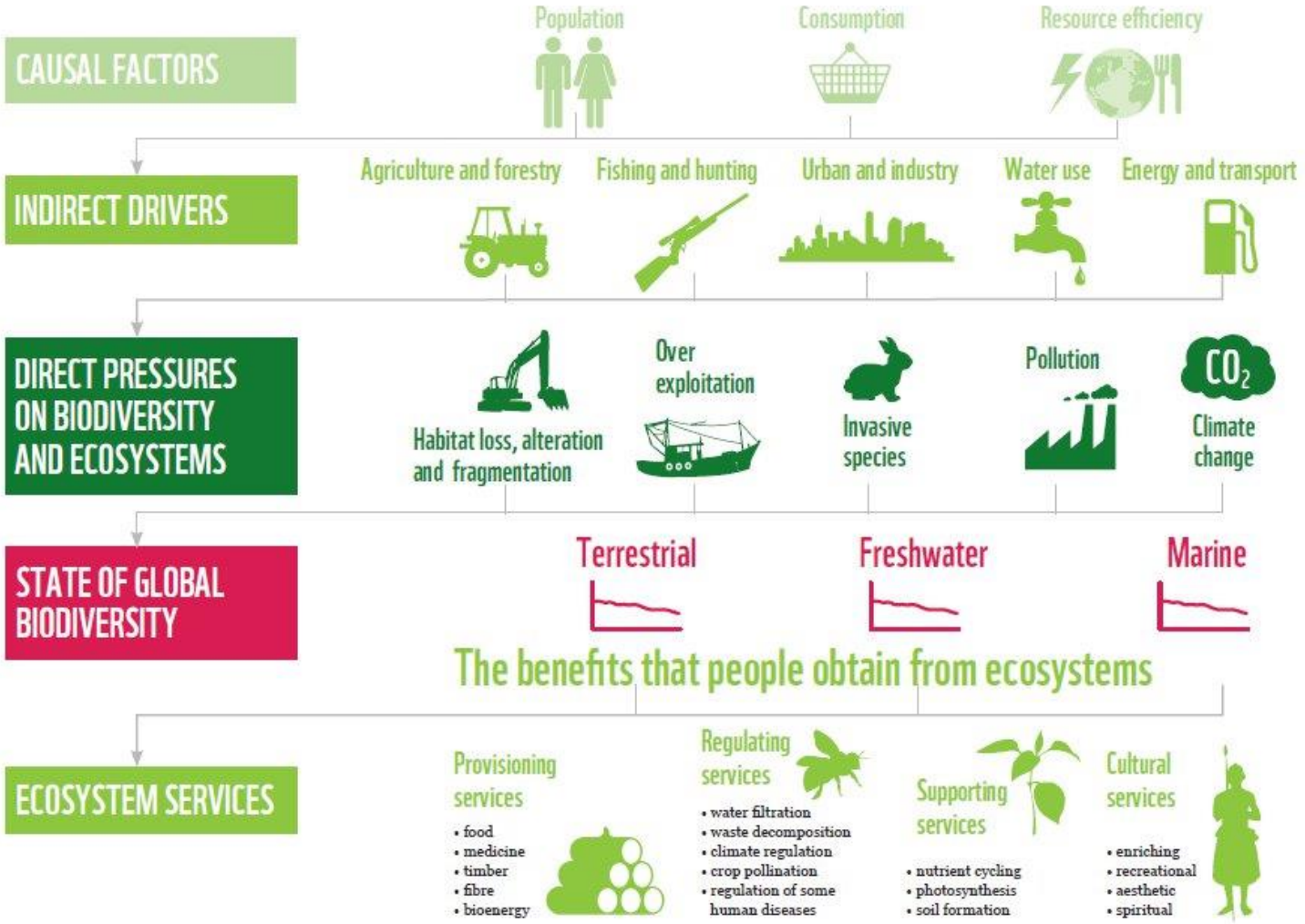
KONSERVASI TUMBUHAN

KBI Botani-Universitas Indonesia

Mega Atria_2019

THE IMPORTANT OF BIODIVERSITY



Biodiversity is Being Lost at an Unprecedented Rate

Biodiversity Loss Matters

MENGAPA KONSERVASI TUMBUHAN ITU PENTING

Benefits of Biodiversity

- **Ecosystem**: Loss of biodiversity at any level could lead to ecosystem instability (ex: keystone species)
- **Agriculture**: pest resistance, commercial uses (ex: *babassu palm*, gives more oil than coconut and could be used for cooking, etc.)
- **Medicine**: cures for diseases (ex: rosy periwinkle used to treat Hodgkin's lymphoma) – 25% of prescriptions come from plants
- **Ecotourism**: source of income for many countries (ex: Costa Rica)

ANCAMAN TERHADAP KEANEKARAGAMAN TUMBUHAN

Habitat loss and degradation are the leading threats.

Introductions of alien species. Some of the worst include cats and rats, green crabs, zebra mussels, the African tulip tree and the brown tree snake. Introductions of alien species can happen deliberately or unintentionally, for example, by organisms "hitch-hiking" in containers, ships, cars or soil.

Over-exploitation. Resource extraction, hunting, and fishing for food, pets, and medicine threatens many species.

Pollution and disease

Climate change induced by humans is increasingly recognised as one of the most serious threats. Climate change has many effects, from altering migratory species patterns to causing coral bleaching.

CONTOH TEKANAN THD KEANEKARAGAMAN TUMBUHAN TUMBUHAN

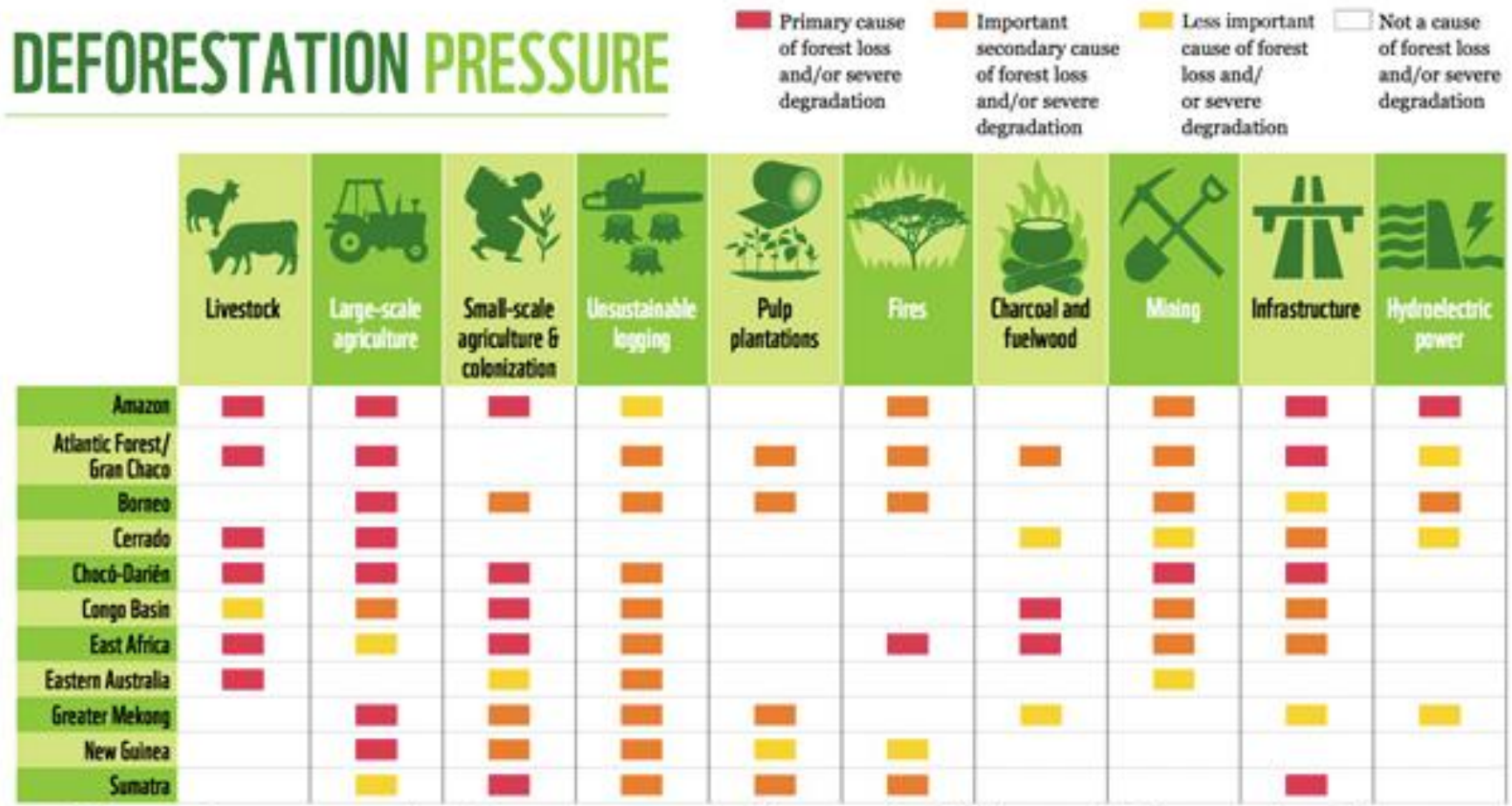


Table 2: Summary of main pressures on forests in different deforestation fronts

HOW TO SAVE PLANTS - APPROACHES TO PLANT CONSERVATION

In situ conservation is the conservation of species in their natural setting, allowing us to maintain natural systems and processes.

Ex situ conservation is the conservation of species removed from their natural setting, safe-guarding the plants even if their natural habitats are destroyed or their populations decimated. This also allows the possibility of restoring degraded natural systems.

Sustainability of plant use and generally sustainable living is ultimately necessary if we are to ensure the long-term conservation of all our natural resources. At present we do not properly value the many benefits of our natural resources, so our activities tend to deplete and degrade them, even though they are essential for human-kind's survival and well-being.

THE GLOBAL STRATEGY FOR PLANT CONSERVATION (GSPC)

grew out of the Convention on Biological Diversity and is being fed into government policy around the world.

The GSPC has 5 main objectives:

- Plant diversity is well understood, documented and recognized
- Plant diversity is urgently and effectively conserved
- Plant diversity is used in a sustainable and equitable manner
- Education and awareness about plant diversity, its role in sustainable livelihoods and importance to all life on Earth is promoted
- The capacities and public engagement necessary to implement the strategy have been developed.

The GSPC includes of 16 targets for conservation to be achieved by 2020.

CONSERVATION GENETICS

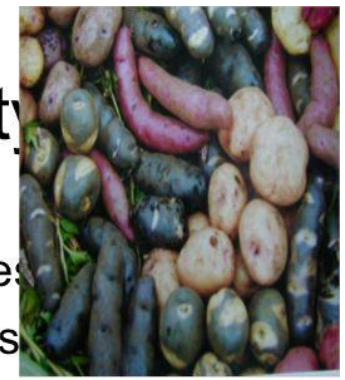
uses genetic approaches to understand the evolutionary and ecological causes and consequences of rarity in endangered plant species. Research conducted by the program combines the fields of plant systematics, phylogeography, population genetics, ecological/quantitative genetics, and genomics to understand evolutionary and ecological dynamics of rare plant species.

carry out DNA and RNA extraction; gel electrophoresis and imaging; polymerase chain reaction (PCR); sample preparation for genotyping, conventional DNA sequencing, next-generation DNA sequencing and RNA-seq; cloning; bioinformatics of genetic data; and data analysis.

Loss of diet variety

- The world has over 50 000 edible plants. Just **three of them, rice, maize and wheat, provide 60 percent of the world's food energy intake**.
- Of these 50 000, **only a few hundred contribute** significantly to food supplies.
- Although there are over 10 000 species in the Gramineae (cereal) family, few have been widely introduced into cultivation over the past 2 000 years
- Cereals are high in carbohydrates so they do provide energy, have low to moderate protein but **are low in micronutrients; often poor quality and over processed**.

Loss of Genetic Diversity



- FAO estimates that 75% of crop varieties have been lost during the last 100 years.
- One third of the 6.500 domestic livestock races are endangered.
- The genetic erosion of crops and livestocks threatens food security.
- Transgenic crops can cause the loss of traditional crops, wild relatives and centers of origin due to genetic contamination.

SPECIES CONSERVATION

Species assessments

***Ex situ* conservation**

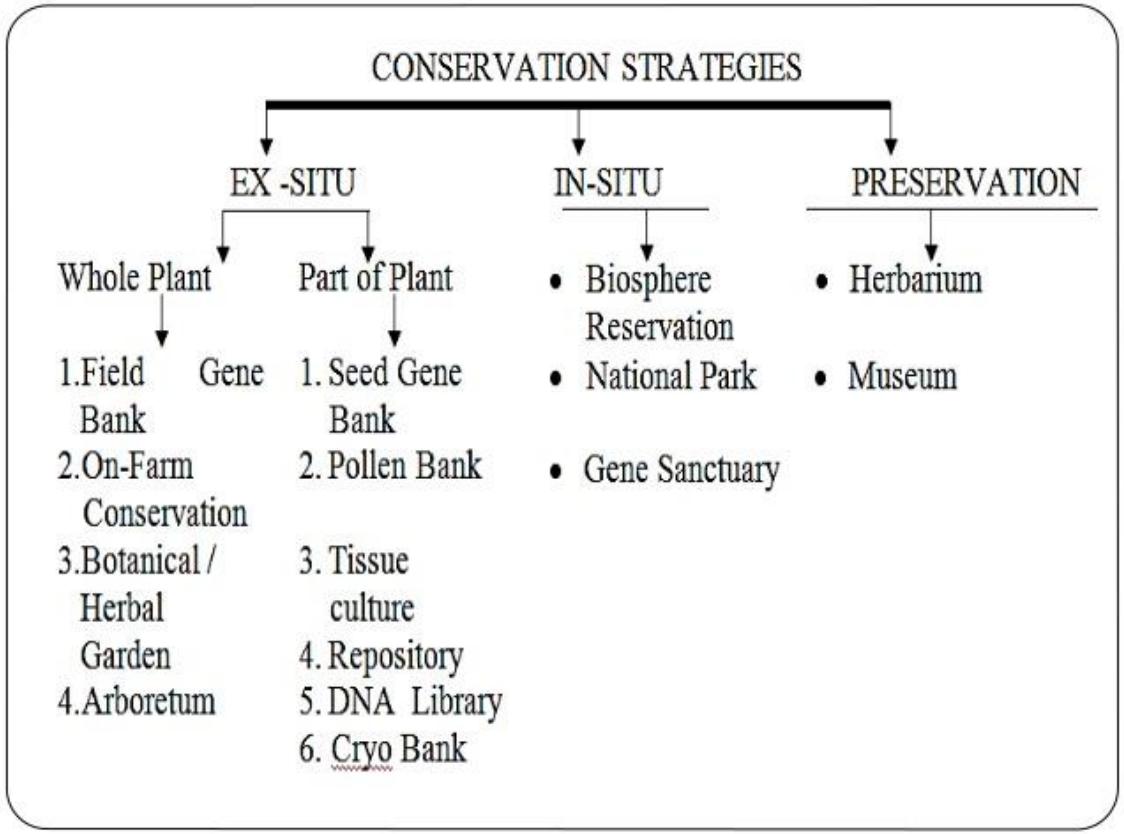
Endangered species reintroduction and management

ECOLOGICAL RESTORATION

Unsustainable use of natural resources has degraded natural environments and threatened plant diversity worldwide


"What we are doing to the forests of the world is but a minor reflection of -
What we are doing to ourselves and to one another".
-Mahatma Gandhi

STRATEGI KONSERVASI



Ex situ Conservation

Ex-situ conservation means literally, "off-site conservation". It is the process of protecting an endangered species of plant or animal outside of its natural habitat; for example, by removing part of the population from a threatened habitat and placing it in a new location, which may be a wild area or within the care of humans.

In situ Conservation

- In situ conservation is on-site conservation or conservation of genetic resources in a **natural population of plants**, such as forests genetic resources in natural population of tree species.
- It is the process of protecting an endangered plant in its natural habitat either by protecting or cleaning up the habitat itself, or by defending the species from predators.
- It is applied to conservation of agriculture biodiversity in agro ecosystem by farmers, especially those using unconventional farming practice.

POHON LANGKA INDONESIA

- Penetapan pohon-pohon itu didasarkan pada empat kriteria: kelangkaan, keterancamaan, nilai manfaat, dan pelestarian.
- Daftar merah International Union for Conservation of Nature (IUCN) mencatat ada lebih dari 487 jenis pohon di Indonesia yang terancam punah, sisanya masih banyak yang belum diketahui.
- Forum Pohon Langka Indonesia: mengusulkan perhatian terhadap 12 jenis pohon langka di Indonesia pada September 2017: 4 jenis kritis (Critically Endangered),1jenis genting (Endangered), 2 jenis rentan (Vulnerable), dan lima jenis lainnya belum dilakukan penilaian.

Sebangkui (Baccaurea macrocarpa)

Hakam (Eleiodoxa comferta)

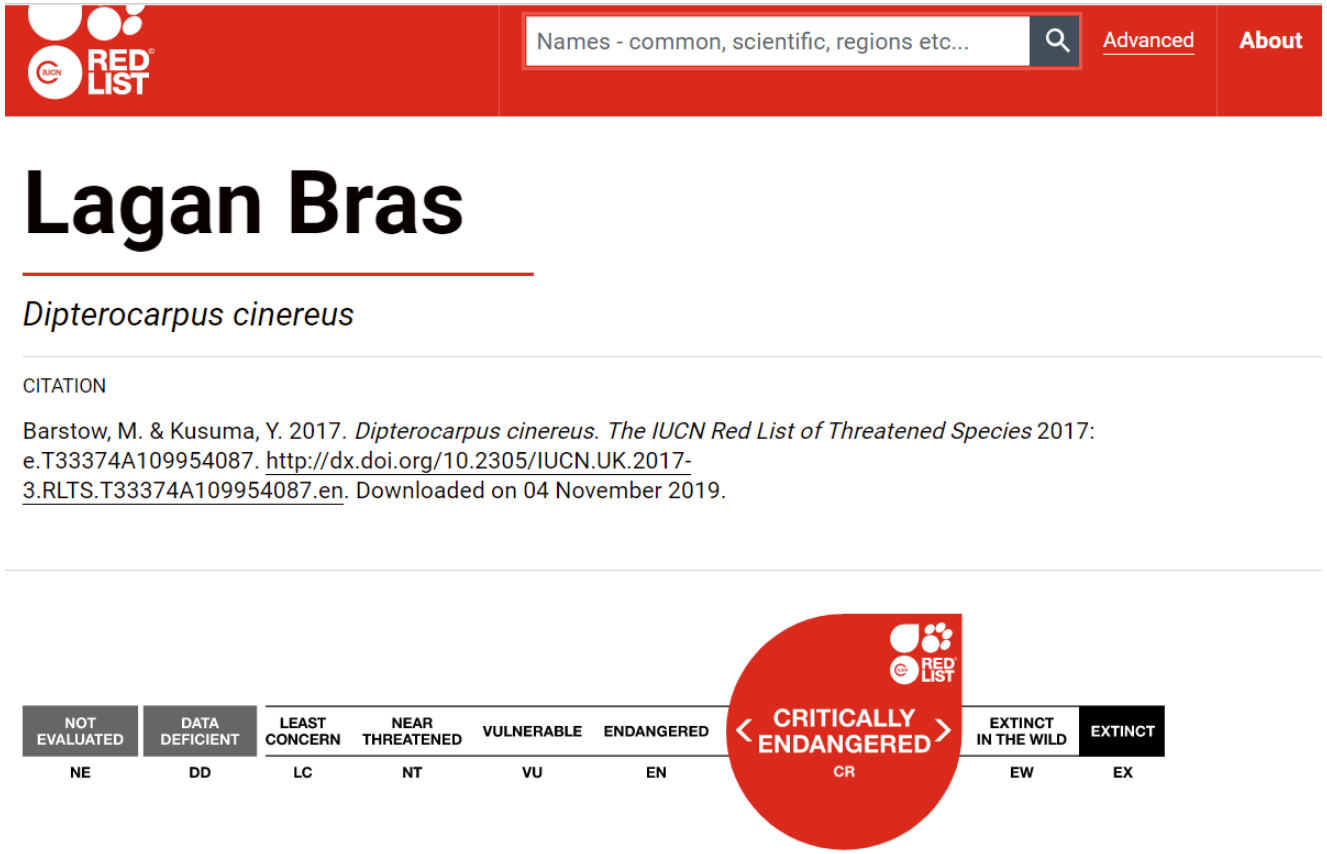
Buah Tapah Susu

Patikala (Etlingera elatior)

Kekalik atau belimbing darah (Baccaurea angulata).

Cempedak (Arthocarpus champeden)

POHON LANGKA DAN STATUS KONSERVASI



- **Lagan Bras** tercatat secara alami hanya tumbuh di Pulau Mursala, Kab. Tapanuli Tengah, Sumatera Utara.
- 1998: IUCN menyatakan bahwa jenis ini telah punah
- 2012: Ekspedisi tim Kebun Raya Bogor – LIPI menemukan kembali jenis ini di Pulau Mursala
- Status: Critically Endangered (CR)

RED LIST

Names - common, scientific, regions etc... Advanced

Dryobalanops sumatrensis

CITATION

Barstow, M. & Randi, A. 2018. *Dryobalanops sumatrensis*. *The IUCN Red List of Threatened Species* 2018: e.T61998024A61998026. http://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T61998024A61998026.en. Downloaded on 04 November 2019.

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX

Dryobalanops sumatrensis adalah pohon asal Indonesia, Malaysia serta Brunei Darussalam. Pohon ini tumbuh pada hutan dataran rendah dan hutan dipterocarp yang berada didekat pesisir.

Dryobalanops sumatrensis terus mengalami penurunan polulasi.

Ancaman yang menjadi factor utamanya adalah penurunan kualitas dan luas area habitat, terutama di Pulau Kalimantan.

Jenis ini terancam juga oleh eksloitasi kayu untuk memenuhi permintaan pasar internasional.

Di Indonesia jenis ini sangat terancam karena menjadi target utama untuk pembuatan kamper.

KEYSTONE SPECIES (SPECIES KUNCI)

A **keystone species** is a plant or animal that plays a unique and crucial role in the way an ecosystem functions.

Without **keystone species,** the ecosystem would be dramatically different or cease to exist altogether.

WHAT EFFECT DO KEYSTONES HAVE ON AN ECOSYSTEM?

Keystone species maintain the local biodiversity of an ecosystem, influencing the abundance and type of other species in a habitat.

Defining characteristics of a keystone species is that it fills a critical ecological role that no other species can.

Without its keystone species, an entire ecosystem would radically change or cease to exist altogether.

a species that is considered a keystone in one environment may not be considered the same in another.

It may not be the largest or most plentiful species in an ecological community, but if a keystone is removed, it sets off a chain of events that turns the structure and biodiversity of its habitat into something very different

https://www.nrdc.org/stories/keystone-species-101

Native to the Sonoran Desert of the southwestern United States and northwestern Mexico, the Saguaro cactus is a keystone species that provides critical nesting spots for birds like red-tailed hawks and woodpeckers (the latter of which peck new nest holes each year, leaving old holes for other birds).

Saguaro cacti serve as an important source of sustenance.

Blooming flowers feed bats, birds, and bees, while their fruit, which ripens when the desert is at its driest, is often the sole wet food source for myriad mammals, insects, and other species.

POHON ARA (FICUS SPP.)

Though a plant, the fig tree is a keystone species. It is a food resource for both the animals and birds. Its leaves are edible to animals but it is its fruits that are mostly sought after. These fruits, present in all seasons, provide food during the dry season when there is no food for the animals. As such, without the plant and no figs, then a number of birds and animals would disappear from the ecosystem.

Fig trees (Ficus) are often ecologically significant **keystone species** they sustain populations of the many seed-dispersing animals that feed on their fruits. They are prominent components of riparian zones where they may also contribute to bank stability as well as supporting associated animals

SRAK (STRATEGI DAN RENCANA AKSI KONSERVASI)

Penetapan pohon-pohon itu didasarkan pada empat kriteria: kelangkaan, keterancamaan, nilai manfaat, dan pelestarian. Dari kriteria tersebut, disusunlah tiga skala prioritas.

Prioritas I merupakan kategoris kritis yang menuntut untuk segera dilakukan konservasi. Pohon endemik dengan sebaran sempit dalam kategori ini, seperti *Dipterocarpus littoralis*, *Dipterocarpus cinereus*, *Vatica bantamensis*, dan *Vatica javanica ssp. javanica*, akan punah dalam waktu dekat.

Prioritas II termasuk jenis pohon yang mendesak untuk dilakukan konservasi. Dengan tingkat keterancaman tinggi serta ancaman kepunahan yang terus berlangsung, spesies seperti *Shorea javanica*dan *Dryobalanops aromatica* masuk dalam prioritas ini.

Prioritas III, sebaran pohon endemik masih tebilang cukup luas, tetai punya tingkat keterancaman yang tinggi. Spesies-spesies ini antara lain adalah *Eusideroxylon zwageri*, *Anisoptera costata*, *Shorea pinanga*, *Durio oxleyanus*, *Durio graveolens*, dan *Castanopsis argentea*.

http://www.pohonlangka.id/id/beranda/

http://lipi.go.id/lipimedia/makin-langka-12-pohon-indonesia-masuk-dalam-srak/18974

https://www.mongabay.co.id/2014/10/13/foto-keren-inilah-desa-desa-berbingkai-pohon-buah-asli-kalimantan/