#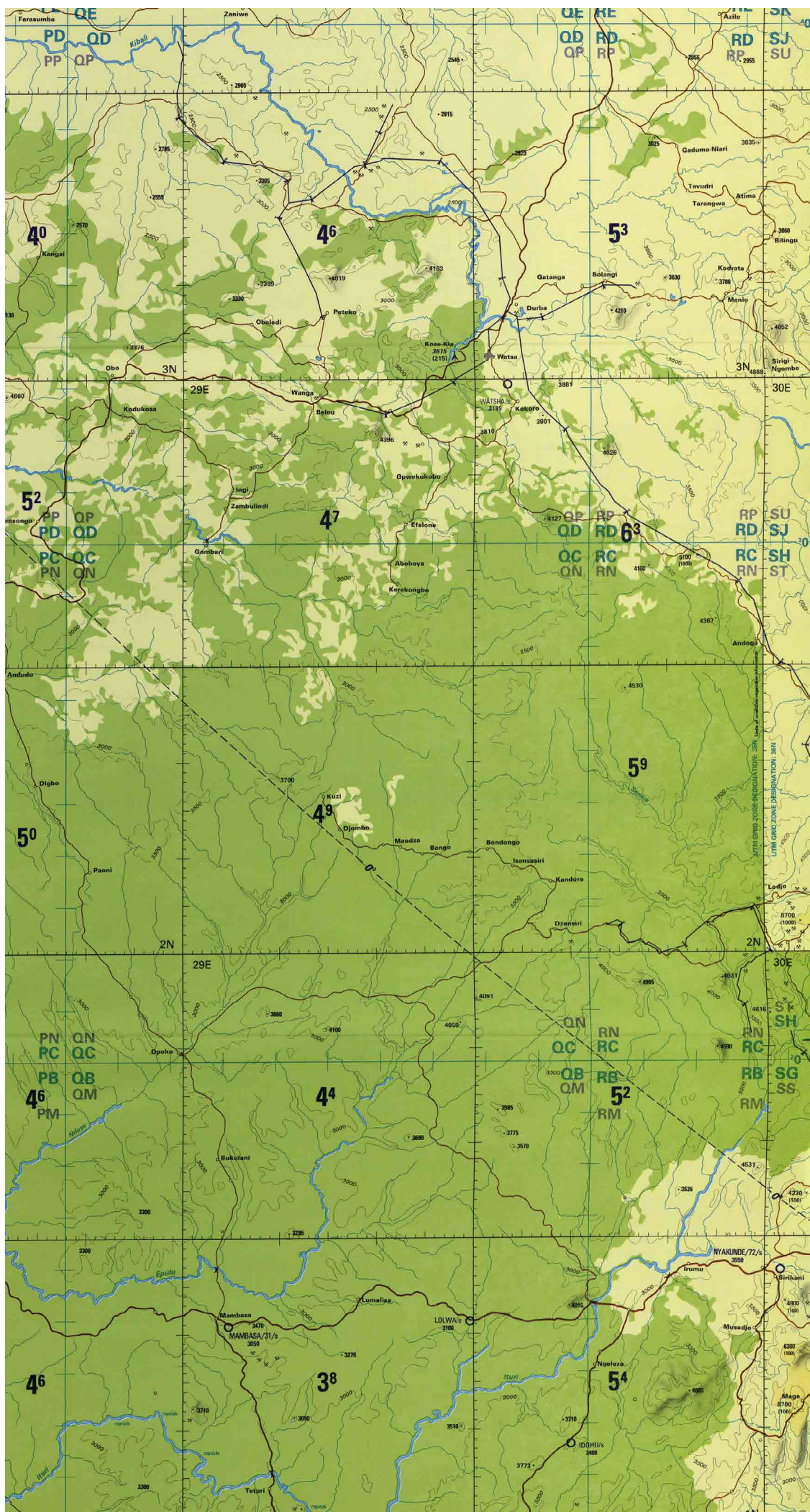 **FOREST,** CONGO BASIN, ITURI AND HAUT-UÉLÉ PROVINCES, MAMBASA AND WATSA CHIEFDOM, *OKAPI WILDLIFE RESERVE, KIBALI AND ITURI RIVER*

Farasumba Zaniwe Azile

QE QD RE SK

PD QD RD RP RD SJ
PP QP QP RP SU

Kibali

2545 2955 2955
2815 3025 Gaduma-Niari 3035
2500 2820 Tavudri Atima
2965 Tarangwa 3860 Bitingu
3305 Kodrata 3780 Menlo

4⁰ 4⁶ 5³
Kangai 2570
3389 4019 4163 Gatanga Bolangi 3630 3630
3330 Peteko Durba 4210 4652
Oboledi Kose-Kia 3675 (215) Watsa

Obo 3N 3N Sirigi-Ngombe 4869

29E Wanga 30E
Kodukosa 4660 Beleu WATSHA/s 3195 Kokoro
4396 3810 3901 3881 4026
Gpwekukobo
Ingi
Zambulindi

5² PP QP 4127 QP RP 6³ RP SU
nsongo PD QD 4⁷ Efolone QD RD RD SJ
PC QC Gombari Aboboya QC RC 5100 (100) RC SH
PN QN Kerekongbo QN RN 4100 RN ST

4367 Andoga

Andudu 4530

Digbo 3700 Kuzi 5⁹
4⁹ Djombo Maodza Bondongo Semliki
5⁰ Paoni Bango Isansasiri
Kandora
Dzansiri Lodjo
5700 (1000)
2N 2N

29E 4091 30E
3860 4058 4905 4531 SH
4100 SH
PN QN QN RN RN
PC QC Opoku QC RC 4590 RC
PB QB QB RB RB SG
4⁶ QM 4⁴ 3985 QM 5² RM SS
PM 3690 3775 3570 RM

Bukulani 4531

3300 3535 4230 (100)
3295
3300 Epulu NYAKUNDE/72/s 3550
Irumu Sirikani
Lumaliza 4015 Musedjo
Mambasa LOLWA/s 3100
MAMBASA/31/s 3050 3470
4⁶ 3⁸ 3270 Ngeleza 5⁴ Maga 5700 (100)
3050 4685
Teturi 3710 IDOHU/s 3600
3710 3773 3510
3300
1N 1N

BOUNDING BOX

POLYGON((
31.34
2.29,
29.79
3.85,
27.55
1.50,
29.17
-0.06,
31.34
2.29
))

WELL-KNOWN TEXT (WKT) STRING

TROPICAL FOREST,
THE OLDEST DOMESTICATED ECOLOGY ON THE PLANET (AT LEAST 40,000 YEARS OLD)

Mbuti People' shelter in the Ituri primary forests. Mbuti co-exist in the Ituri forest with groups of nomadic people. The Efe occupy the northern and northeatern parts of the forest. Along with them, the less populous hunter-gatherer groups known as Aka and Sua
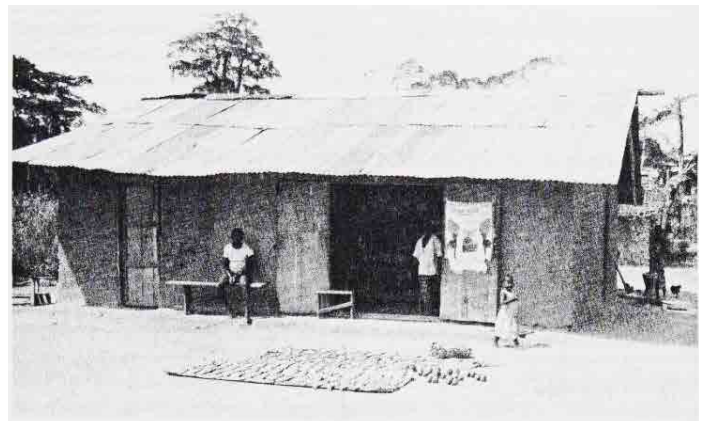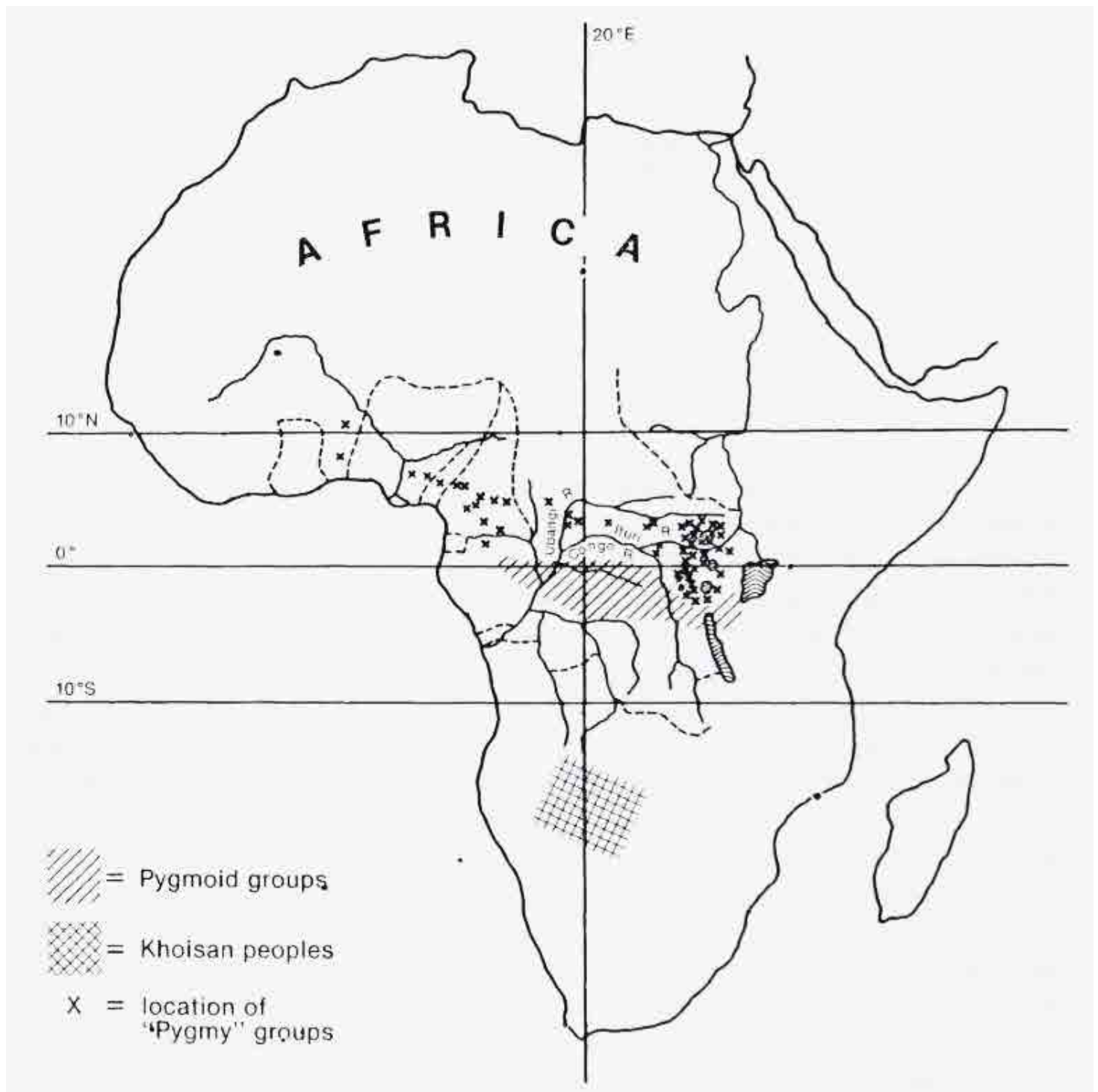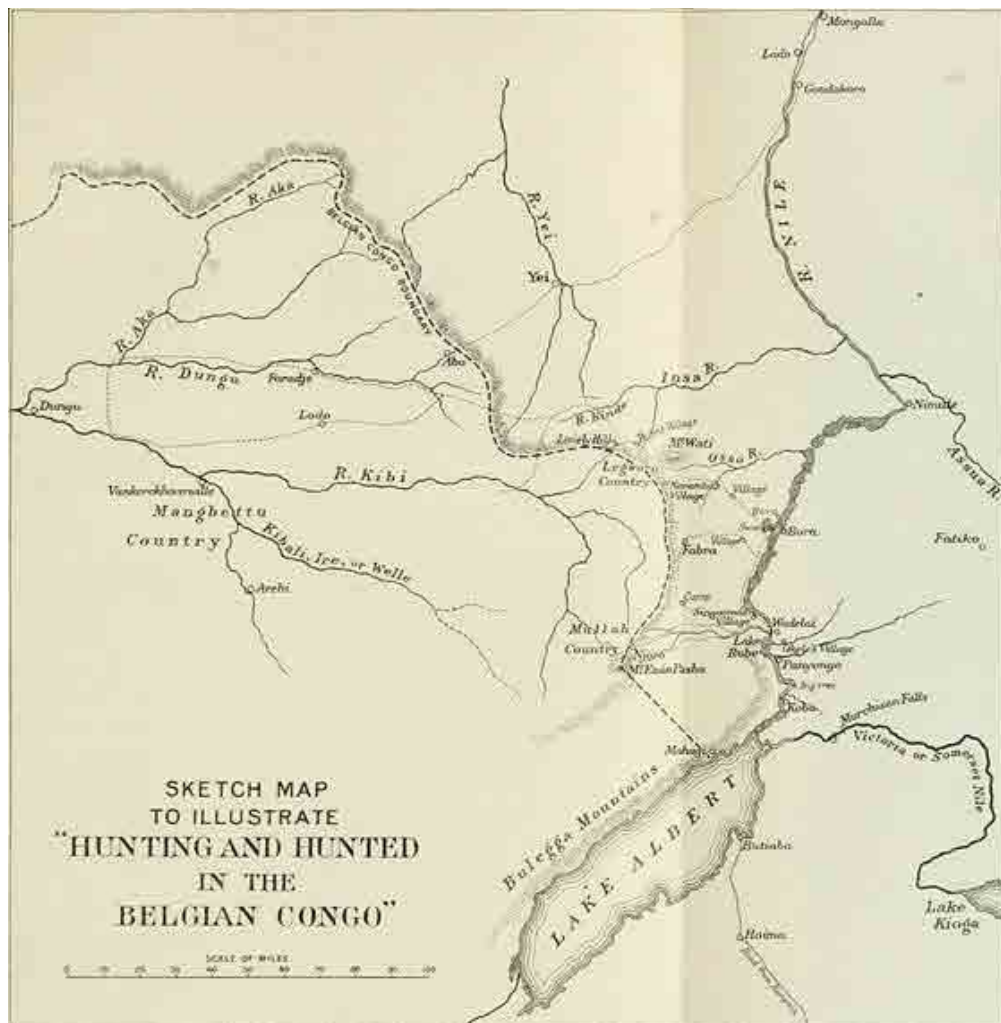
The complexity of nomadism in the forest-village system, social relations in hunting camps and in the plantations with traditional communities
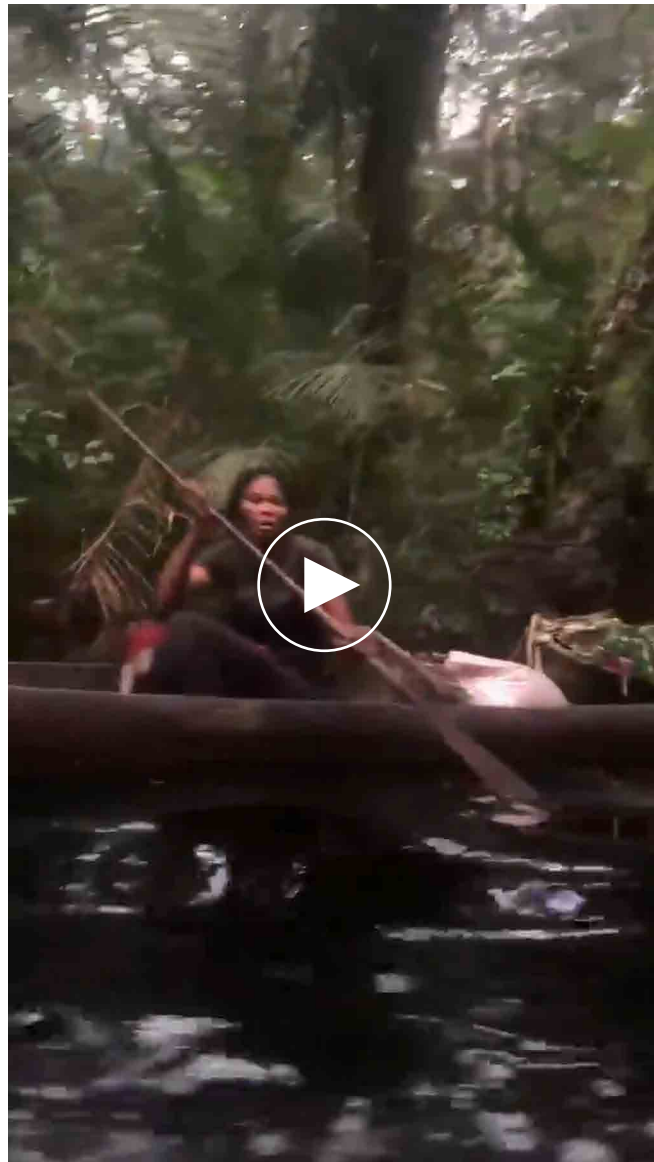
(VIDEO) An entrenched system of waterways

Cooper R (1914), Hunting and Hunted in the Belgian Congo.
A map demonstrating the proximity of the Nile basins and those of the Kibali and Dungo rivers (tributaries of the Congo River). This physical geography has favoured migration and coexistence between the four main African ethnolinguistic groups (Pygmies, Bantu, Sudanese, Nilotic)

STARTING A COLLECTION AND BIBLIOGRAPHY FOR THE **CONGO BASIN FOREST** (ON BASIC NEEDS AND RIGHTS)

AGROFORESTRY, SUBSISTENCE FARMING, PLANTATIONS AND MONOCULTURE IN THE SAVANNAH-FOREST MOSAIC ECOTONE 🖥

Picture from Adam Cassinga (2023)

A THOUSAND-YEAR-OLD DOMESTICATION OF WILD FRUIT PLANTS. *IRVINGIA ROBUR* (EBUTE), AMONG THE FAVOURED BY INDIGENOUS

Open fruit with fresh kernel of Irvingia robur

Vernacular name	Scientific name
a) Tuber & Root	
tumba	*Dioscorea baya* (Dioscoreaceae)
konjo	*D. bulbifera* (Dioscoreaceae)
aduaka	*D.* cf. *sagittifolia* (Dioscoreaceae)
amekiki	*D. smilacifolia* (Dioscoreaceae))
ekoko	*D. smilacifolia* (Dioscoreaceae)
etaba	*D. smilacifolia* (Dioscoreaceae)
amakalukpe	*D.* sp. (Dioscoreaceae)
kisombi	*Ipomoea chrisochaeta* (Convolvulaceae)
amanjiapi*	?
amapayeiye*	?
bekuku*	?
b) Seed & Nut	
ekele	*Balanites wilsoniana* (Balanitaceae)
kene	*Celtis adolphi-friderici* (Ulmaceae)
nbalanbala	*Chrysophyllum delevoyi* (Sapotaceae)
ko	*Cola acuminata* (Sterculiaceae)
suli	*Desplatzia dewevrei* (Tiliaceae)
nbau	*Gilbertiodendron dewevrei* (Leguminosae, Caesalpinioideae)
esele	*Irvingia gabonensis* (Ixonanthaceae)
ebute	*I. robur* (Ixonanthaceae)
engango*	*Pancovia harmusiana* (Sapindaceae)
sesemu	*P. laurentii* (Sapindaceae)
songo	*Ricinodendron heudelotii* (Euphorbiaceae)
pusia	*Treculia africana* (Moraceae)
esenge or esengeli	?
hou	?
ngilesu or bangelesu	?
njee	?
pumbu	?
tobye*	?
tua, ekolo, tubi	?
Fruit & Berry	
ngamoa	*Aframomum stipulatum* (Zingiberaceae)
elumbu	*Annonidium mannii* (Annonaceae)
mbe	*Canarium schweinfurthii* (Burseraceae)
toko	*Cola lateritia* (Sterculiaceae)
malondo	*Dictyophleba lucida* (Apocynaceae)
buma or abuma	*Landolphia owariensis* (Apocynaceae)
amedede	*L. owariensis* (Apocynaceae)
bembekenye	*Myrianthus holstii* (Moraceae)
kpekpe	*M. prousii* (Moraceae)
nbombo	*M.* sp. (Moraceae)
akale	*Orthopichonia lacourtiana* (Apocynaceae)
abeka	*Piper guineense* (Piperaceae)
sana	*Pseudospondias microcarpa* (Anacardiaceae)
ekoko	*Renealmia africana* (Zingiberaceae)
amanbunonbuno	*Salacia pyriformoides* (Celastraceae)
mgbako	*Solanum indicum* (Solanaceae)
ngongo	*Thaumatococcus daniellii* (Marantaceae)
bukanbanda*	?
elinda	?
ngamo*	?
d) Leaf	
atete	*Amaranthus dubius* (Amaranthaceae)
kpedekpede	*A. tricolor* (Amaranthaceae)
njombo	*Momordica foetida* (Cucurbitaceae)
ngoua	*Solanum nigrum* (Solanaceae)
asede or alaka	?

Tanno T (1981) *Plant Utilization of the Mbuti Pygmies: With Special Reference to Their Material Culture and Use of Wild Vegetable Foods*

Red River Hog Distribution

Range Category

Confirmed

Uncertain

Extinct

IUCN Protected Areas

Distribution of the Red River Hot Potamochoerus porcus, a species hunted in the forests of the Ituri and traded with villagers who bring it to the city

40 KG/PERSON/ YEAR OF BUSHMEAT. * EMPTY FORESTS, EMPTY STOMACHS?

* Indigeous People depend upon the villagers' farms products for the bulk of their vegetable foods, which they acquire in exchange for game meat, by offering their labour to the villagers or by providing forest products the villagers need

Nasi R, Taber A, Van Vliet N (2011), Empty forests, empty stomachs? Bushmeat and livelihoods in the Congo and Amazon Basins

Bushmeat consumption among rural and urban children from Province Orientale, Democratic Republic of Congo
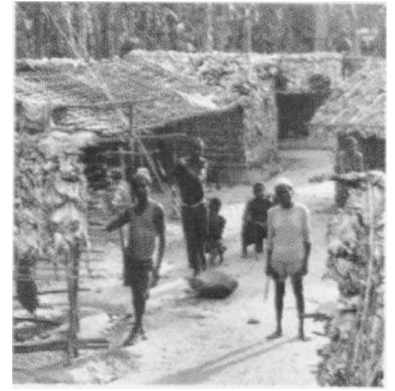
Picture of an Mbuti autonomous village community in the Ituri forest taken after the appearance of the European (wuzungu)

CASSAVA, A KEY SUBSISTENCE SPECIES GROWN IN THE VILLAGE'S SEASONAL GARDENS

Terashima H, Ichikawa, M (2003), A comparative ethnobotany of the Mbuti and Efe hunter-gatherers in the Ituri forest, Democratic Republic of Congo

Marivoet, W, Ulimwengu, J, Salam el Vilaly, M A (2018), Understanding the Democratic Republic of the Congo's agricultural paradox

Legenda   ×

Rural Complex 2000 - 2010 DRC

Summary 2000-2005-2010 Rural Complex Footprint

☐ Nodata

■ Water

☐ Natural or Older Development NF, SF and
   WD

■ Rural Complex 2000

■ Rural Complex 2005

☐ Rural Complex 2010

■ Perforated Forest 2000

■ Perforated Forest 2005

■ Perforated Forest 2010

■ Medium Home and Forest 2010 1k...
   0kha

■ ge Fr...ment Forest 2000 10kha... 50
   kha

■ Core Forest 2010 > 50kha

THE MOST DEBATED AGRICULTURAL PRACTICE: SWIDDEN OR SLASH-AND-BURN AGRICULTURE
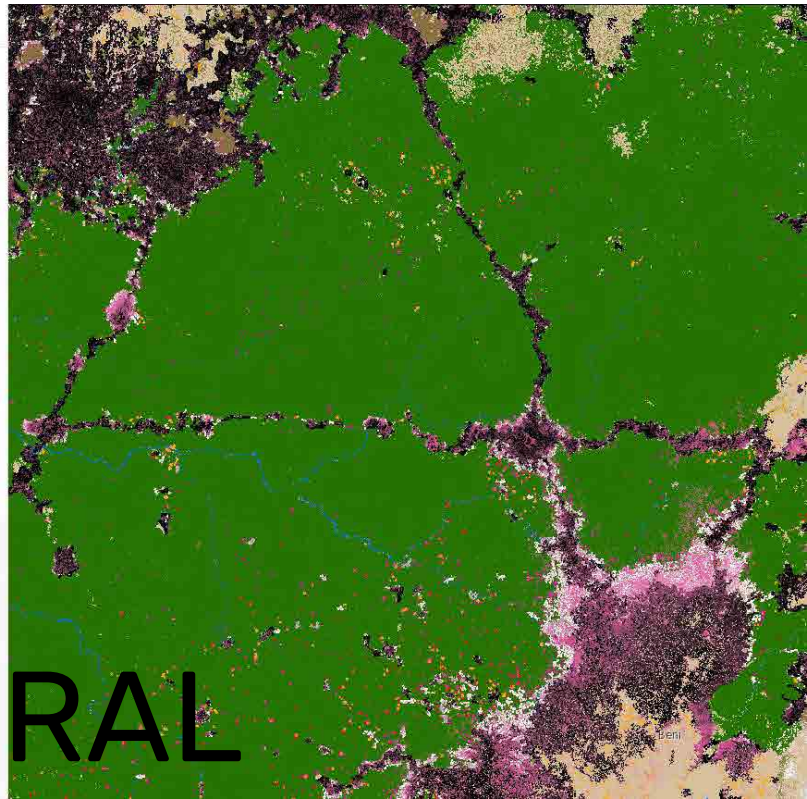
In DRC, 63 percent of tree cover loss detected between 2000 and 2015 occurred within the rural complex (black-prior 2000, grey-up to 2005 and white-up to 2010), meaning it was caused by shifting cultivation rather than expansion into forests, which accounted for 13 percent of tree cover loss.

🖥

Tanzito G, Ibanda P A, Talaguma R, Lusanga N M (2020) Slash-and-burn agriculture, the major cropping system in the region of Faradje in Democratic Republic of Congo: Ecological and socio-economic consequences

New Map Helps Distinguish Between Cyclical Farming and Deforestation in the Congo Basin

FOREST-VILLAGE DYNAMICS. AN EXAMPLE OF COEXISTENCE BETWEEN THE FORAGERS *EFE* PEOPLE AND THEIR NEIGHBOURING FARMERS *LESE* PEOPLE

Before completing his house (right) a Lese man's Efe wife builds them a makeshift Efe hut. Picture taken in Malembi, north of Mambasa, 2° 15' 11" N 28° 47' 8" E

Grinker R R (1994), *Houses in the Rainforest: Ethnicity and Inequality Among Farmers and Foragers in Central Africa*

NOMADIC, SEMI-NOMADIC, PERMANENT, SEASONAL

Environmental favourability model for Pygmies (spatial distribution models based on the favourability function, which distinguish areas with favourable environmental conditions from those less suitable)
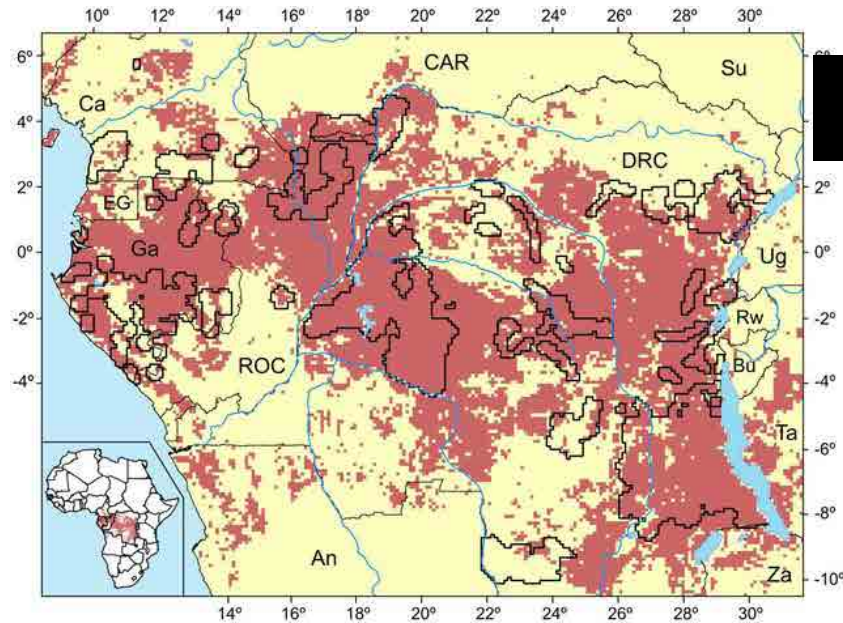
WHERE REGIONS DO THE INDIGENOUS GROUPS—WHO ARE PRIMARILY SEMI-NOMADIC— MOVE? 🖥️

Olivero J, et al. (2015) Distribution and Numbers of Pygmies in Central African Forests

OPEN BUILDINGS. SATELLITE-DETECTED EVIDENCES OF SETTLEMENT 🖥 (OR, MULTI-TEMPORAL 🖥)

Building footprint satellite-detention of the linear settlement along the RN4 national highway crossing Okapi Reserve

HUMAN PRESENCE, INHABITANTS PER KM² 🖥️

DISCONTINUOUS AQUIFERS WITH HIGH POTENTIAL. DRAW DRINKING WATER AT THE COMMUNITY FOUNTAINS, WELLS, NATURAL SPRINGS / COLLECTING RAINWATERS

Collecting water mobility: 54.2% of the population in DRC takes 30 minutes or more to access water

SPECIES RARITY: A FUNCTION OF GEOGRAPHICAL RANGE SIZE, NUMERICAL ABUNDANCE AND HABITAT SPECIALISATION

Species are considered rare if their area of occupancy or their numbers are small when compared to the other species that are taxonomically or ecologically comparable

THE NUMBER OF SPECIES IN A COMMUNITY: RICHNESS
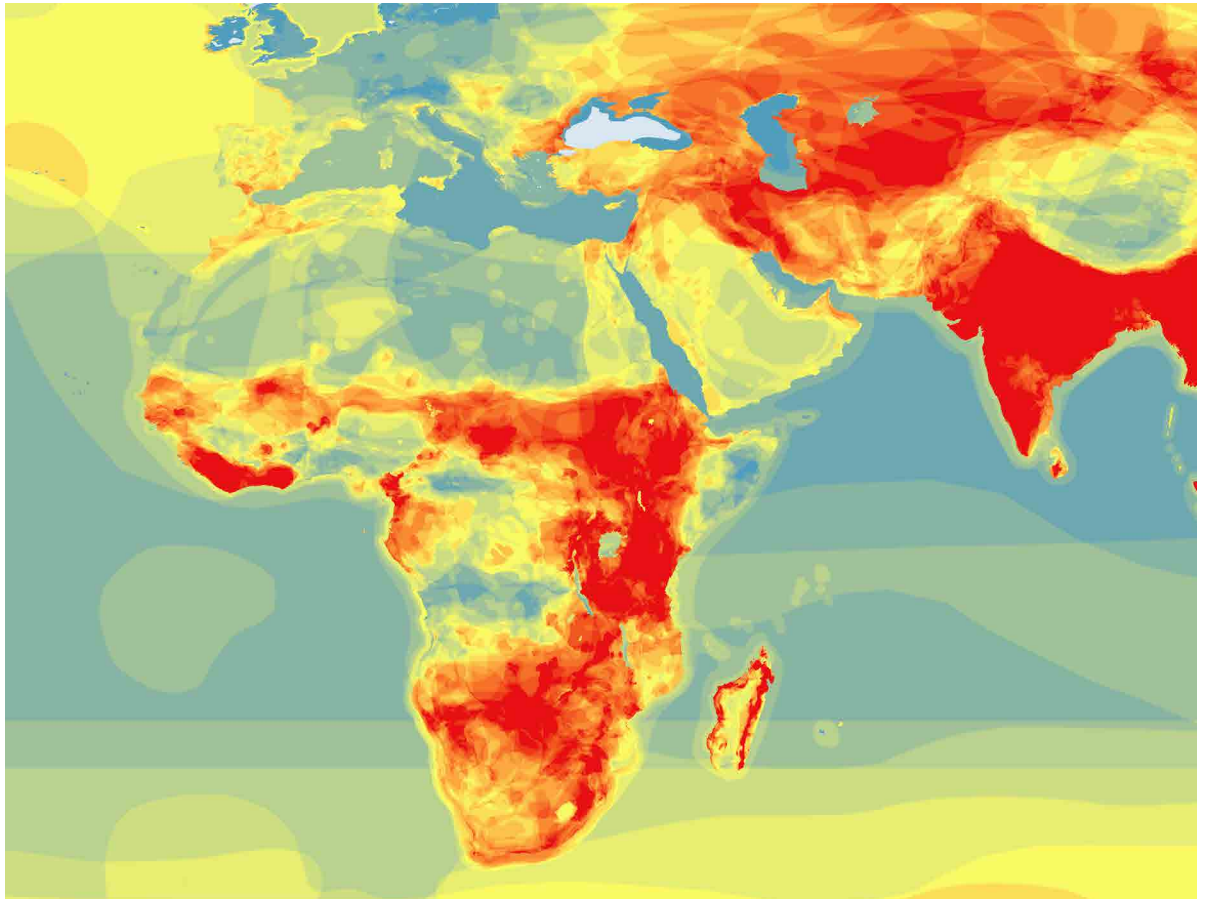
The Biodiversity Intactness Index estimated percentage of the original number of species that remain and their abundance in any given area, despite human impacts.

CHANGE IN ECOLOGICAL COMMUNITIES IN RESPONSE TO HUMAN PRESSURES: BIODIVERSITY INTACTNESS 🖥️
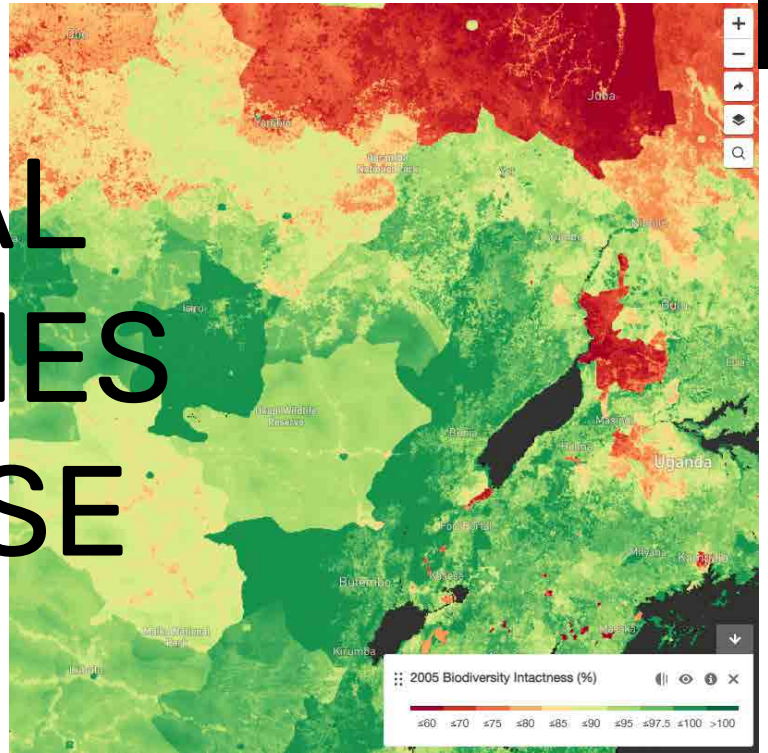
# THREATS POSED BY ZOONOSES. OUTBREAKS OF EBOLA VIRUS DISEASE (EVD)

Based on species distribution models and environmental covariates, the EVD zoonotic niche map predicts the geographic extent of the zoonotic transmission niche.
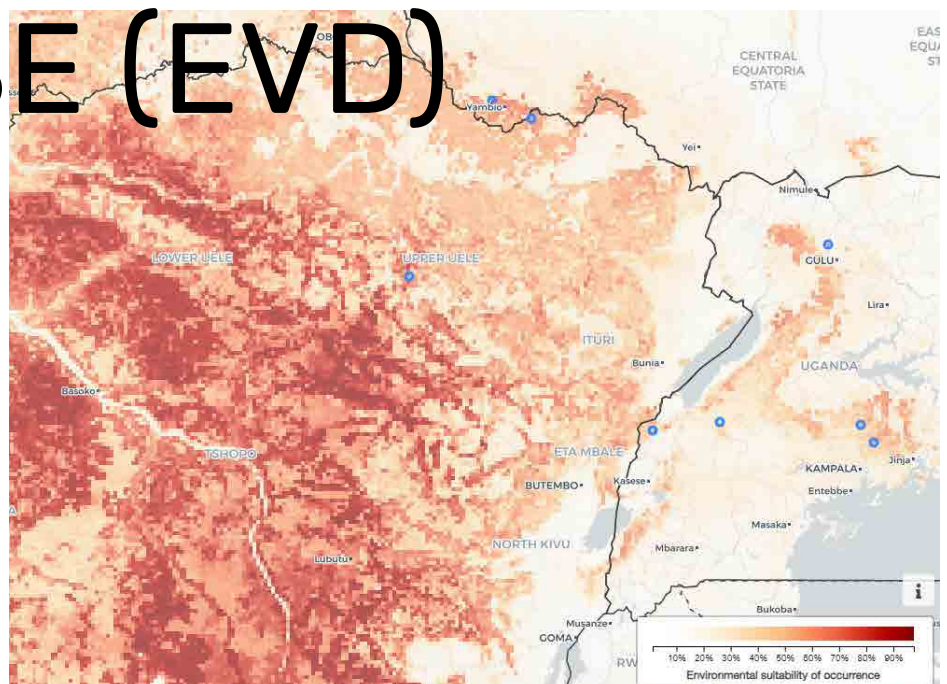
SWAHILI AND LINGALA🖥 MOST WIDELY USED LANGUAGES, THEN THE MINORITIES ALUR🖥, BILA🖥, MANGBUTU🖥, NYALI🖥, BENDI🖥, MANGBETU🖥, MAMVU🖥, LESE🖥, DONGO🖥, KEBU🖥, LENDU🖥

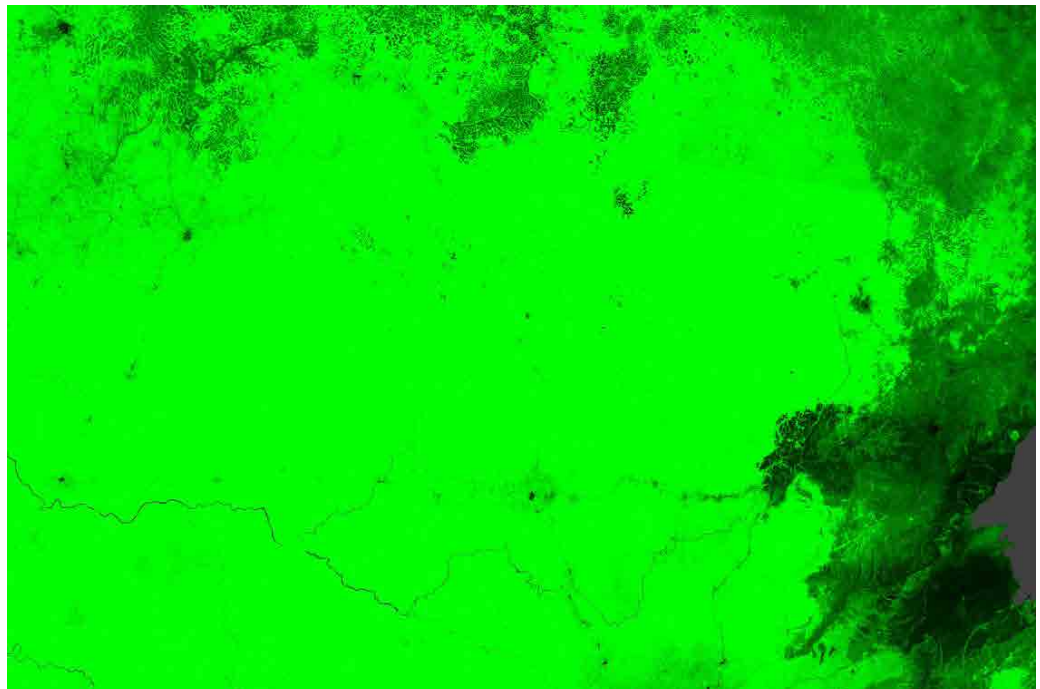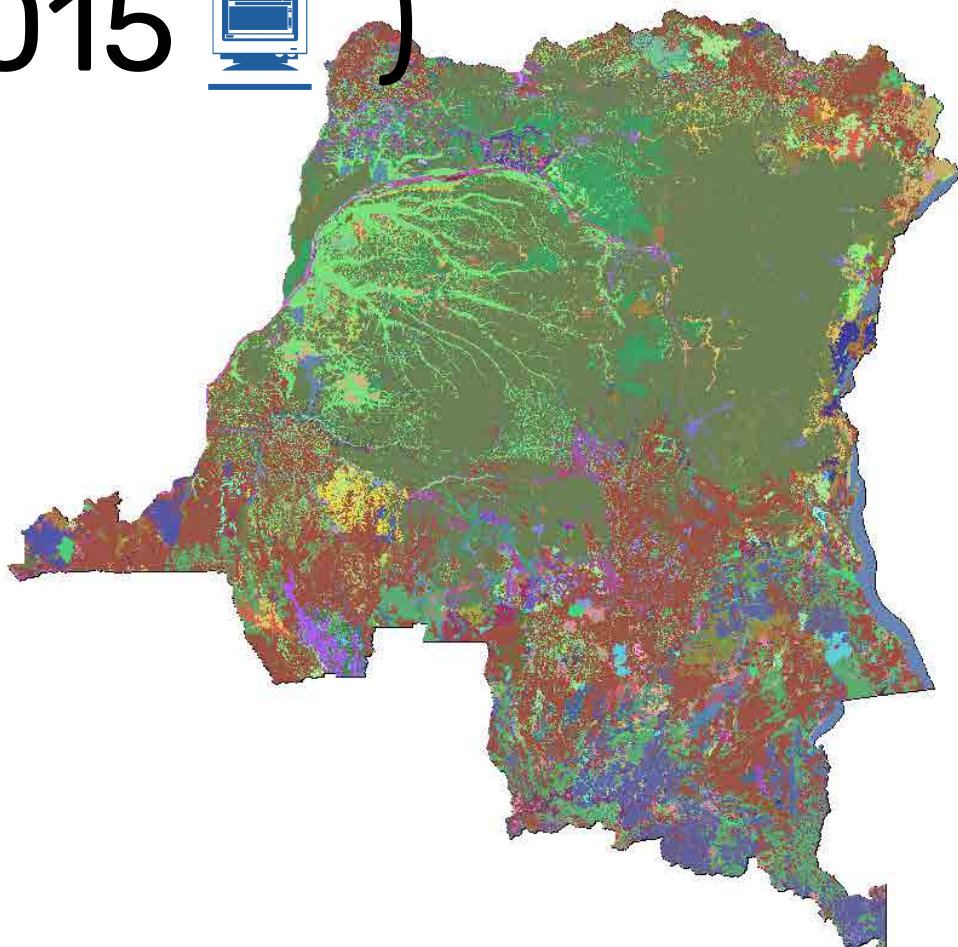# ELEVATION MODEL 30M 🖥 (OR, EITHER 30M 🖥)
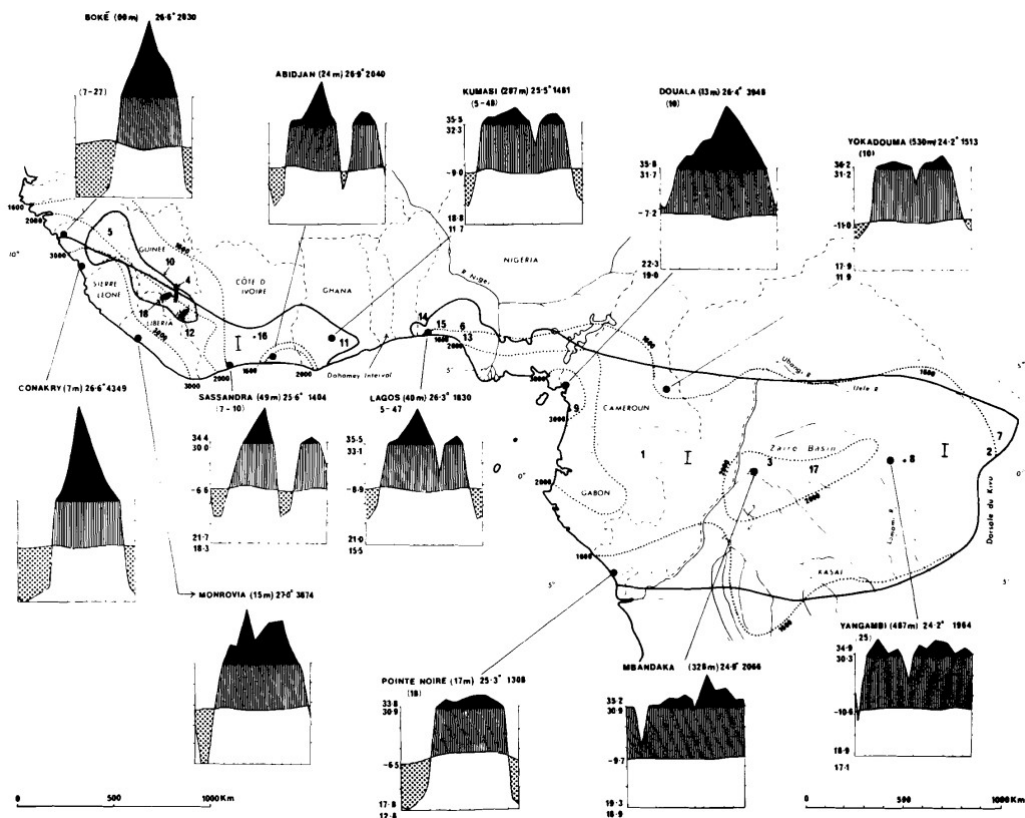
CAN YOU SEE THE SKY WHILE IN THE FOREST? HOW MUCH THE CANOPIES ARE CLOSED 🖥

Tree cover in the Ituri province, year 2000, defined as canopy closure for all vegetation taller than 5m in height. Encoded as a percentage per output grid cell, in the range 0–100

THE (BIO) PHYSICAL COVER (YEAR 2003 🖥 , YEAR 2015 🖥)

MAMBASA, EPULU, WATSA. WHERE TELCOMS ANTENNAS ARE LOCATED 🖥️

Epulu antenna captured by Mapillary users at the Institut Congolais pour la Conservation de la Nature (ICCN) centre 1°24'04"N 28°34'38"E

Prospectors at the mine sites occasionally recruit pygmies to deliver water and rocks that will be crushed and washed.
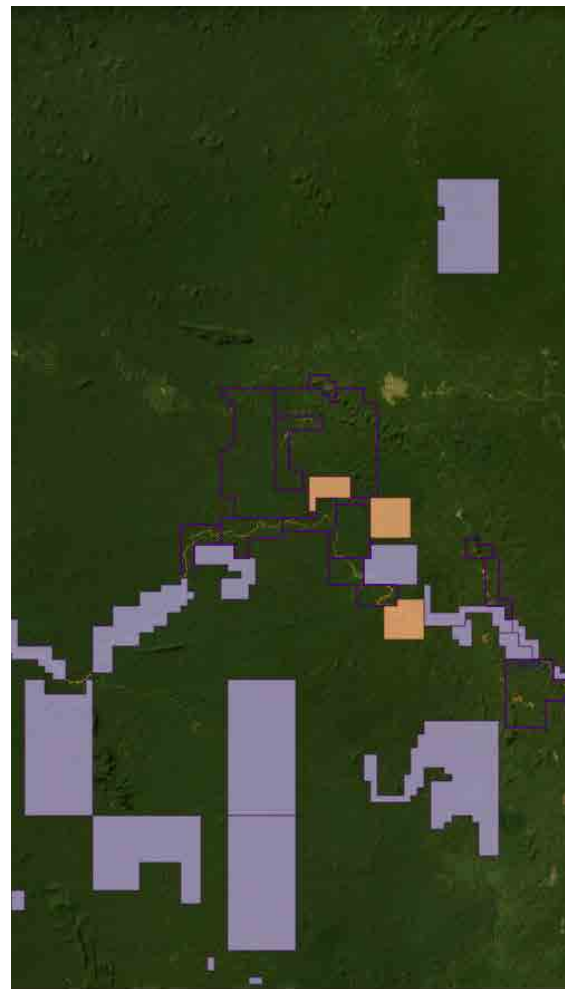
THE GOLD RUSH THAT COMPELLED FOREST PEOPLE TO CHANGE THEIR LIVELIHOODS. ARTISANAL (ILLEGAL) MINING IN DENSE FOREST AREAS 🖥️
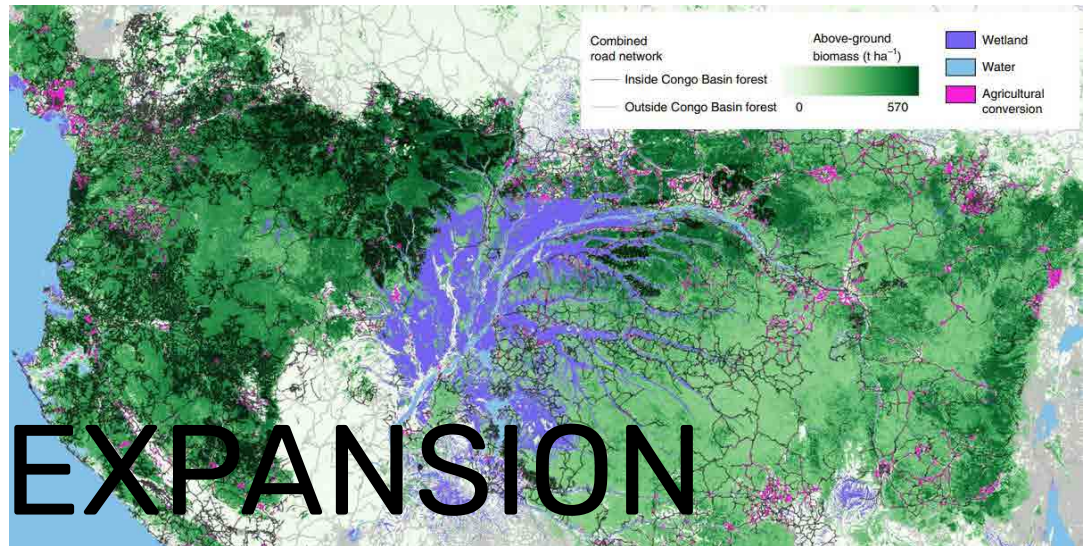
Okapi Wildlife Reserve: Illegal Sourcing of Gold and Timber (2018)

Le fleuve d'or: the production and trade of gold from Mongbwalu, DRC

REVEALING THE ABUNDANCE OF UNDERGROUND RESOURCES BY CONSIDERING THE PERMITS ISSUED IN THE MINING CADASTRE 🖥️

ROAD EXPANSION IN FORESTS OF THE CONGO BASIN. HABITAT DISRUPTION, LIVELIHOOD SHIFTING, AND AUTONOMY LOSS

Kleinschroth F , et Al (2019), Road expansion and persistence in forests of the Congo Basin

FROM CLIMATE CHANGE TO AGRICULTURAL LAND CONVERSION TO ILLEGAL MINING AND LOGGING. GROSS FOREST COVER LOSS 🖥️ AND NEAR-REAL TIME TRACKING 🖥️

In blue are shown the GLAD deforestation alerts recorded since January 2023 in the Mambasa area

GLAD Deforestation Alerts, Explained

Deforestation intensifies in northern DRC protected areas

Smoking fireplace remains photographed by Matt Reichel in an Mbuti hunting camp

FIRE ALARMS. COOKING FIRES OR FOREST CLEARING (ILLEGAL ACTIVITIES AND SWIDDEN AGRICULTURE) ?


What is the VIIRS 375 m Active Fire Product?

THE TROUBLED RELATIONSHIP BETWEEN INDIGENOUS PEOPLE AND CONSERVATION INSTITUTIONS IN THE PROTECTED AREAS. WHAT ARE THE BOUNDARIES? 🖥️

⬇️

What went wrong with conservation at Kahuzi-Biega National Park and how to transform it (commentary)

POLITICAL ECOLOGY

# CONFLICTS, HUNDREDS OF *CODECO* AND *MAI-MAI* REBELS HIDING IN THE FOREST 🖥️

Kivu Security Tracker (KST) map violence by state security forces and armed groups in eastern DRC
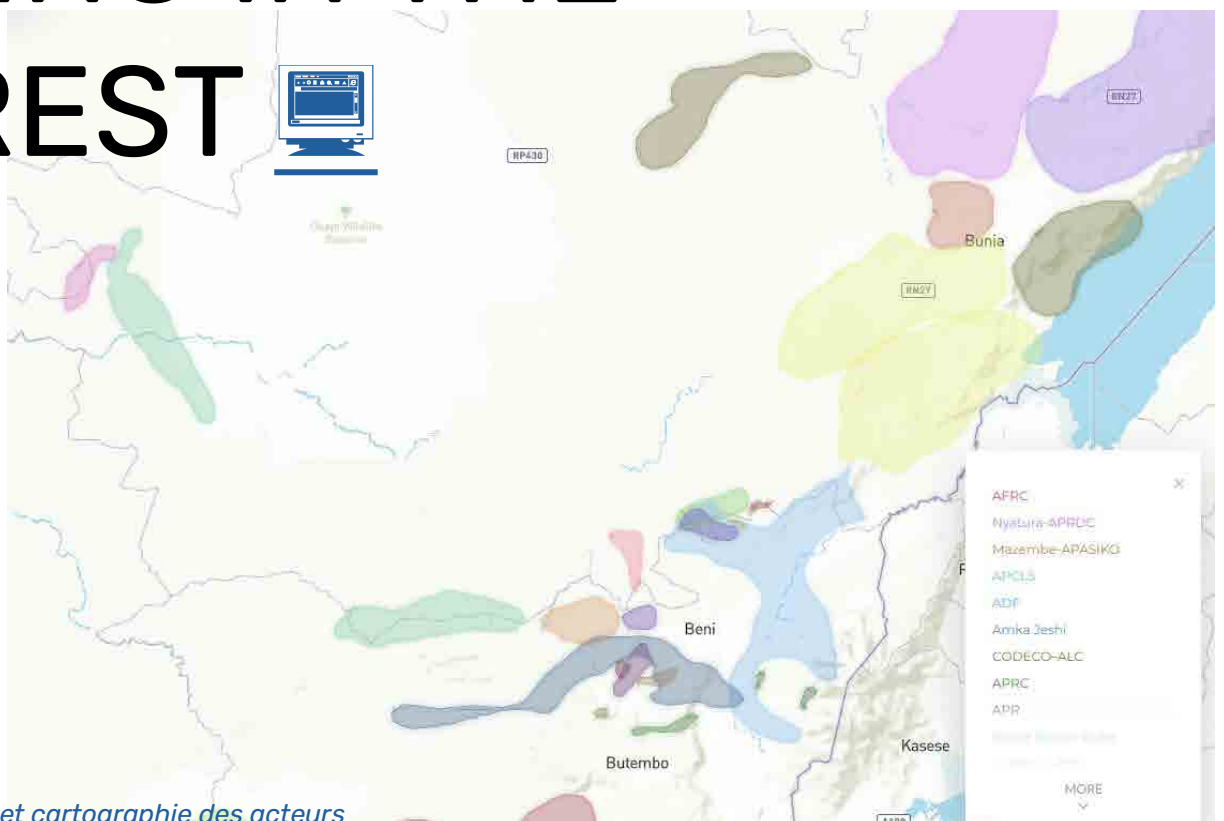
*Analyse de conflit et cartographie des acteurs dans le Sud Kivu et l'Ituri*

SURVEYING PLOTS AND CUSTOMARY LANDS TO SECURE THEM AMIDST CONFLICT OVER LAND RIGHTS

UN–Habitat issues land certificates in Ituri Province in DRC
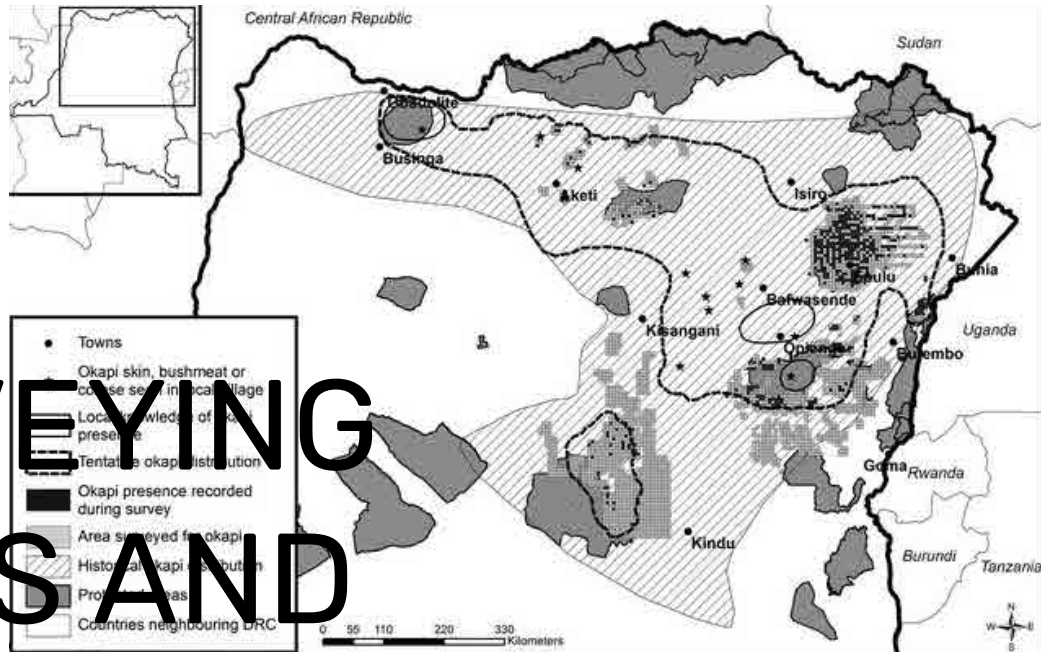
"THE SONG OF THE FOREST", NOMADIC HUNTING AND GATHERING, RITUALS

The annual circuit of three hunting camps of the Aka People pivoting on a single village (1983)

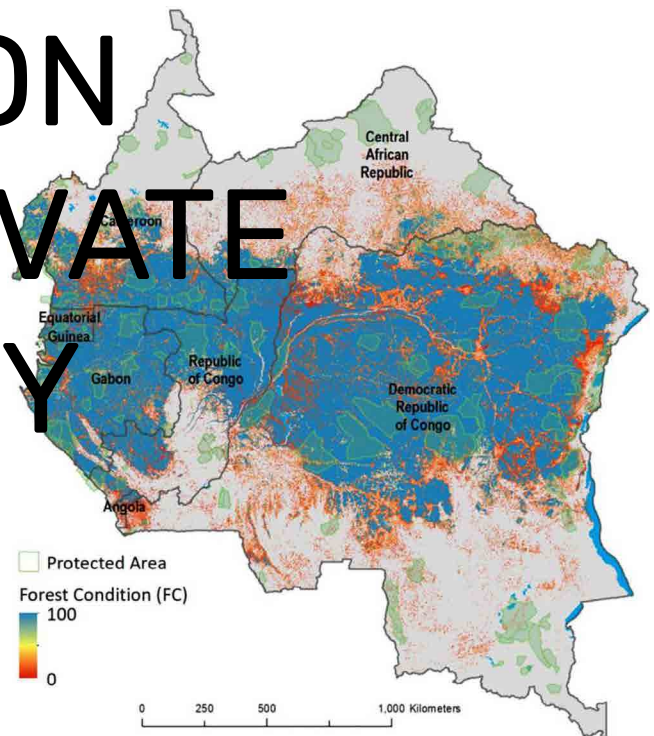Turnbull C M (1962), The forest people
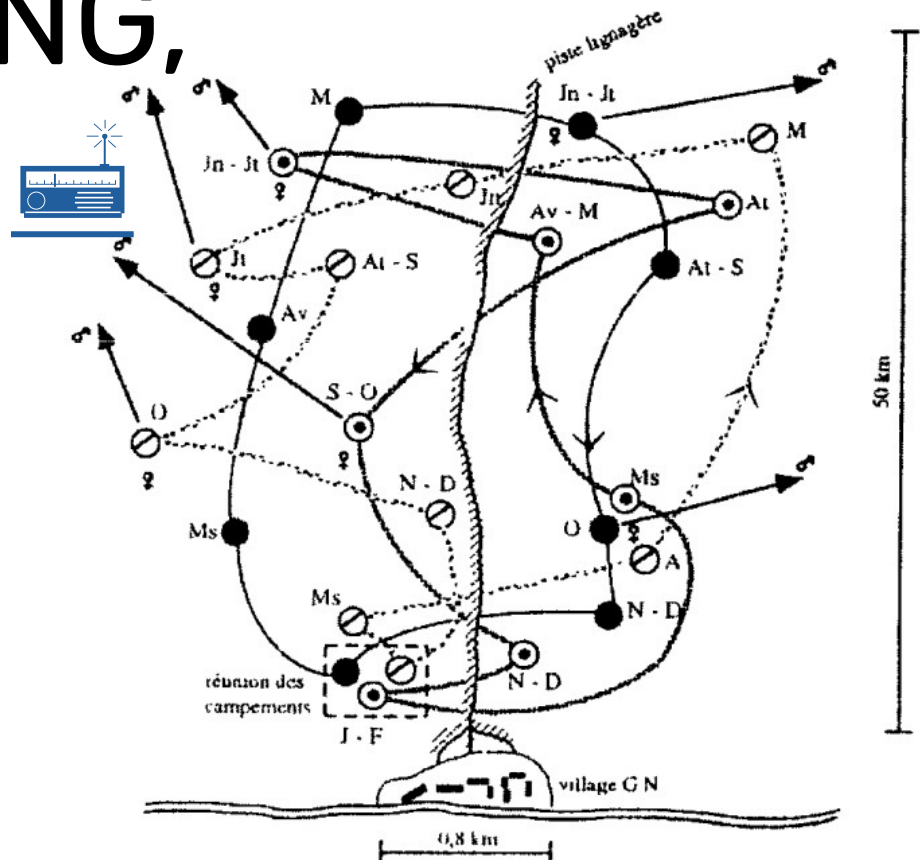
PRISONERS OF MUD. EASTERN PROVINCES DEPEND ON THE RIDEABILITY OF THE *RN4* HIGHWAY

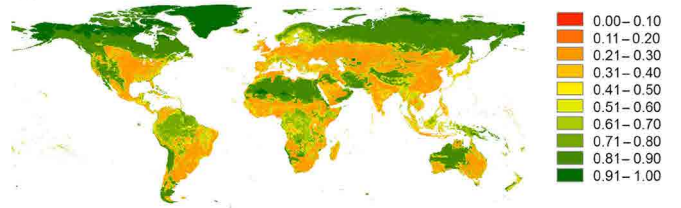*A historical image of a mud stuck convoy on the N4 national road*

DETERMINING THE FOREST'S CONDITION TO MEASURE THE DEGREE OF ITS DEGRADATION AND REACTIVATE ITS CAPACITY TO PROVIDE ECOSYSTEM SERVICES 🖥️
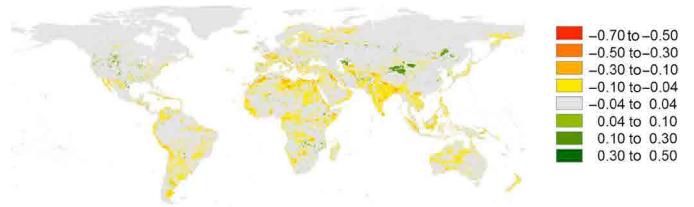

Shapiro A C, et Al. (2021), Forest condition in the Congo Basin for the assessment of ecosystem conservation status

GLOBIO4 MODEL'S SPATIAL DATASETS FORECAST LAND COVER BASED ON SEVERAL CLIMATE SCENARIOS 🖥️

Projecting terrestrial biodiversity intactness with GLOBIO 4

L'ENFER AU PARADIS (HELL IN THE HEAVEN)

Congolese soldiers and Okapi park rangers accompany the bodies of those killed by rebels while guarding a defunct illegal gold mine. Picture by Adriane Ohanesian (2018)

FOREST,
DRAW THE BOUNDING BOX ON A MAP

FOREST,
BUILD YOUR OWN MENTAL IMAGE OF THE EMPTY PLACE USING SATELLITE IMAGES AND CRITICALLY ANALYSING THE DOCUMENTATION IN THE DOSSIER

FOREST,
PLOT A ROUTE THAT CONNECTS PLACES AND STORIES BY REPRESENTING THEIR PHYSICAL AND SOCIAL GEOGRAPHY

FOREST,
PUBLISH THE TRACK TO THE WEB USING MAPBOX STUDIO

FOREST, CREATE A PRINTABLE SYNTHESIS MAP WHERE YOU TELL AND REPRESENT THE STORY/ STORIES ALONG YOUR JOURNEY

FOREST, DON'T FORGET THE RITUAL AND WHO TAKES PART IN IT. THAT'S WHY YOUR MAP IS WRONG. *THE MAP IS NOT THE TERRITORY*. BUT BY THEN, YOU WILL HAVE LEARNED A PROCESS.