TÉNÉRÉ DESERT, AÏR MOUNTAINS, IGHAZER PLAIN, *AÏR AND TÉNÉRÉ NATIONAL NATURE RESERVE, KAWAR OASES*

8°
9°
10°
11°
20°
19°
18°
17°
Adrar Bous
Temet
Greboun
RESERVE
INTEGRALE
ERG
DU
TENERE
Tessiguidi
Izouzadene
Adrar Chiriet
IFEROUANE
Tamgak
Taghmeurt
Adrar Madet
Tin Telloust
Takaloukouzet
Timia
In Dakat
Tabelot
Haut massif
Oued
Chef lieu administratif
Village
Temet Lieu dit
Source
0
20
40
60 km

BOUNDING BOX

Coordinates System *EPSG:4326*
WGS 84 -- WGS84 - World Geodetic System 1984, used in GPS
https://epsg.io/4326

POLYGON((
7.30
20.17,
7.30
16.80,
13.29
16.80,
13.29
20.17,
7.30
20.17
))

WELL-KNOWN TEXT (WKT) STRING

*Download the bounding box (.*WKT, .*geojson, .*KML)*
https://github.com/lsnmst/cartorituals/tree/main/mapping-empty-space/desert

DESERT, THE EPHEMERAL ISOLATED TREE AS A STONE SIGNPOST FOR THE NOMADS

Fig. 5. – **Agar** *(Maerua crassifolia)*, «arbre des génies» dont le tronc porte des inscriptions en caractères **tifinagh** (Photo E. Bernus).

«le corps d'un enfant souffrant de la fièvre de charbon de bois de l'arbre **agar**... La poudre noire qui recouvre l'enfant doit faire sortir les **Kel Esouf** (génies) du corps de l'enfant (Nicolaisen, 1961, p. 148). Les feuilles hachées de l'**agar** sont aussi barbées sont fébrifuges (Maire, 1933, p. 110). Chez les Kel Ahaggar, Foucauld (1951-52, T. 1, p. 477-478) signale que les femmes récemment répudiées, qui doivent pendant 3 mois faire retraite **(elloudet)** et qui ne peuvent au cours de cette période, ni se marier, ni participer à l'**asri**, réunion galante où règne la liberté des mœurs», cherchent un **agar** isolé. Elles demandent alors à cet **agar** de prendre en charge leur retraite et de se substituer à elles pour accomplir ou terminer cette période de réclusion. Elles s'adressent à l'**agar** :

An isolated tree in a deserted area is called Amesekni between Tamazeq speakers. From the verb Seken, to show, can also be translated as stone signpost, and serves as landmark to orient nomads despite ephemeral nature, as well as giving name to countless toponyms

National Geographic Institute of France (1976), Natural Reserve and Integral Reserve of the Aïr and the Ténéré

19° 0′ 9′′ N , 12° 53′ 36′′ E
The ruins of Dirkou, the oasis city first mentioned in the 11th century under the control of the Kanem king Mai Arku as the centre of the lucrative trans-Saharan salt trade, was largely abandoned in the 19th century

Vanni Beltrami (1981), Route network in the Aïr territory, Italian Institute for Africa and the Orient

STARTING A COLLECTION AND BIBLIOGRAPHY FOR **TÉNÉRÉ DESERT AND AÏR MOUNTAINS** (ON BASIC NEEDS AND RIGHTS)

When you find it means that there is data available

OASIS FARMING: A PALM GROVE THAT, IN THE PRESENCE OF ENOUGH WATER, SUPPORTS TWO STOREYS OF VEGETATION

Oasis in the Bilma department (IRAM)

The arid pastoral and oasis farming system. Key centres for the development of trans-Saharan economies

Improving Access to Water for Agriculture and Livestock in Niger

AGROECOLOGY OF PHŒNICICULTURE - DATE PALM TREE. THEIR PLACE IN ETHNOBOTANY

The phoenicicultire in the Aïr mountains.
Giraud (1980) Les palmeraies et la phoeniciculture dans le massif de l'Aïr

Girard F (1980) Les palmeraies et la phoeniciculture dans les massifs de l'Aïr

Ali A (2023) Palmeraie de l'Aïr: Services écosystémiques et dynamiques des populations

THE *HYPHAENE THEBAICA* PERICARP BECOMES FLOUR, THE KERNEL MIXED WITH FRESH MILK

VUE DU PALMIER DE LA THEBAÏDE APPELLÉ DOUM.

DÉTAILS DE LA FRUCTIFICATION.

KNOWN AS *AGAR* IN TAMASHEQ. THE *MAERUA CRASSIFOLIA*, THE TREE THAT THE CATTLE CHASE

Bernus E (1979) L'arbre et le nomade

Bernus E (1985) "Agar", Encyclopédie berbère

ACACIA TORTILIS. THE SYMBOLIC TREE, FODDER FOR THE ANIMALS

1969 image of the Ténéré Tree, popularly known as the most isolated Acacia tortilis on the planet (17°27 00 N 10°02 24 E , felled in 1973).

NOMADIC, SEMI-NOMADIC, PERMANENT, SEASONAL

TRAVEL AREAS OF TUAREG GROUPS ACROSS THE SOUTHWESTERN AÏR IN THE DRY SEASON

Emergency Archaeological Programme in the In Gall Region (Republic of Niger), Atlas Current human occupation, 1977-81

THE TRANSPORTABLE HABITAT (TENT) IN WOVEN MATS AND LEATHER

IUCN (1996) The National Aïr and the Ténéré Nature Reserve (Niger). The inhabitants of the RNNAT and its surrounding area

1929 illustration of the saltworks of Teguida-n-Tisemt

GRASS, WATER, SALT, COPPER, AND OTHERS: PASTORAL-NOMADICS' STRATEGIES

(2013) 3 Grass, Water, Salt, Copper, and Others: Pastoralists' Territorial Strategies in Central Sudan

(1974) Les Illabakan (Niger) : une tribu touarègue sahélienne et son aire de nomadisation

OPEN BUILDINGS. SATELLITE-DETECTED EVIDENCES OF SETTLEMENT

Building footprint satellite-detention of the oasis city of Bilma

Fig. 4 – Le palais du sultan de l'Aïr à Agadez. Le sultan revient juste d'un court déplacement hors de la ville, et les musiciens, dont 3 tambourinaires à dos de chameau, jouent en son honneur. Les tambourinaires, frappant chacun sur deux tambours, et d'autres musiciens, jouant de divers instruments à vent, accompagnent le sultan quand il quitte son palais. Les tambours du sultan sont différents de celui du chef des Kel Férouan (Fig. 6). Ils sont plus grands et plus hauts, la peau est fixée différemment, et ils sont frappés avec des baguettes.

1405, THE SULTANATE OF AÏR.

Johannes N (1982) Structures politiques et sociales des touaregs de l'Aïr et de l'Ahaggar

SEDENTARIZATION EVIDENCES: THE MUD ARCHITECTURE

(2014) Earth Architecture in Niger between past and future

Introduction to the Themes of Sedentarisation, Urbanisation and State Formation in the Ancient Sahara and Beyond

THE *HYPHAENE THEBAICA* TRUNK SERVES AS BEAMS TO SHELTERS

Photographie 37. Paillote en ruche à Iférouane. (cliché P. Tunley)

Reclus E (1885) Kawar Oasis. Wood-engraved map

THE OASIS, AN ENTIRELY MAN-MADE SITE. A PRIME EXAMPLE OF INTERACTION BETWEEN HUMANS AND THE DESERT

ATLAS of Saharan and Arabian Oases. Definition and typology

Accès à l'eau au Niger : Quelles ressources pour quels besoins ?

ACCESS TO FRESH/DRINKING WATER

Animal-drawn wells (Tekarkari) in the Telwa valley, southern Aïr

DIGGING TO FIND THE WATER TABLE

Agriculture Water Management Investments: Shallow wells and boreholes (15m) Biophysical Suitability

WATER SECURITY. A GEOPHYSICAL SURVEY –VERTICAL ELECTRICAL SOUNDING– TO ESTIMATE GROUNDWATER VOLUME

Electrical imaging to decode the potential aquifer locations for water security in semiarid Niger, Africa

THE RED LIST. ENDANGERED SPECIES POPULATIONS

Torgos tracheliotos, *Lappet-faced Vulture, Classified as Endangered by IUCN Red List*

Photographie 26. Harde de Moutons à manchettes (Ammotragus lervia) dans l'un des massifs montagneux de l'Aïr. (cliché J.E. Newby)

HARSH ECOLOGICAL CONDITIONS DO NOT MEAN ABSENCES OF WILDLIFE

IUCN (1996) The National Aïr and the Ténéré Nature Reserve (Niger). Wildlife in the reserve

BOUNDARIES OF HISTORICAL, LINGUISTIC OR CULTURAL AREAS OF INFLUENCE: SONGHAY, HAUSA, BORNOUANE, TOUARÈGUE

Emergency Archaeological Programme in the In Gall Region (Republic of Niger), Geographical and historical overview, 1977-81

TOPONYMY IN IGHAZER-AÏR. A LINGUISTIC LANDSCAPE BUILT OF OVER 2,500 PLACE NAMES

AZĞEN, AZAKKA OR *MUDA* : A UNIT OF CAPACITY FOR FOOD PRODUCTS

1. *Moûda* de bois renforcé d'un laçage de peau

2. Vente de mil sur le marché de Tamanrasset. La mesure ci-dessus est une boîte de fer au fond arrondi qui vaut un *moûda*.

Gast M (1963), Mesures de capacités et de poids en Ahaggar

Gast M (2010) "Azğen", Encyclopédie berbère

MAERUA CRASSIFOLIA AND *ACACIA TORTILIS*, MAJOR IN THE PHARMACOPOEIA. TREATING BLOWS AND WOUNDS (ALSO FOR ANIMALS), OR HEADACHES

ELEVATION MODEL

90M 30M

Topographic map of the Aïr massif

INTERTWINED SETTLEMENTS. HOW MANY AND WHERE ARE THE PHONE CELL TOWERS?

AZALAÏ, THE SALT CARAVANS. *TAGHLAMT*, THE CARAVAN FROM THE AÏR TO THE KAWAR

Each year, caravans load the millet harvested in the southern regions in Agadez and transport it to Bilma. On the way back, the salt extracted from the Bilma salt pans is transported to Agadez on camels.

Chatelard A (1990) "Azalaï", Encyclopédie berbère

Skolle J (1956), Azalaï, Harper & Brothers

Le négoce caravanier au Sahara central : histoire, évolution des pratiques et enjeux chez les Touaregs Kel Aïr (Niger)

HUMAN/ANIMAL MIGRATION

Élodie Apard picture of a broken down truck between Arlit and Assamaka (Algeria-Niger border)

DISAPPEARING CARAVAN ROUTES TURNING INTO MIGRATORY ROUTES. CROSSING INTO CONFLICT AREAS WITH THE FEAR OF BEING STRANDED IN THE DESERT

Voies commerciales et routes de l'exode : évolution des pratiques de voyage au Niger

Un désert cosmopolite. Migrations de transit dans la région d'Agadez

FROM TAKELOKOZAT TO TABELOT. THE NEW CARAVAN ROUTE, THE GOLD ROUTE

Dromedary caravan lowering bags of ore from the Takelokozat veins to be shipped by truck to a processing centre in Tabelot

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A COMPLEX SYSTEM OF PASTORAL RULES AND CUSTOMS ON LAND RIGHTS OVERLAID BY COLONIAL AUTHORITY

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POLITICAL ECOLOGY

NUCLEAR COLONIALISM AND SPOLIATION OF AGRO-PASTORAL LAND BY MINING COMPANIES

Status of uranium mining licences in Niger in 1968. Mineral plan of the Republic of Niger (1980)

Colonialisme nucléaire et spoliation des terres agro-pastorales par des sociétés minières

CONFLICT, POLITICAL VIOLENCE AND PROTEST

LES CROIX D'AGADEZ, PENDANTS RESEMBLING A CROSS (*TANAILT*), OR A PLAQUE, OR A SHIELD (*TALHAKIM*)

Beltrami V (1994), "Croix d'Agadez", Encyclopédie berbère

“CATTLE CULT”, A SOCIAL RESPONSE TO THE RADIP ENVIRONMENTAL CHANGE

Map of main sites in the Aïr mountains with stone features containing livestock offering: Adrar Bous, Talak, Chin Tafidet, In Tuduf

Building monuments, creating identity: Cattle cult as a social response to rapid environmental changes in the Holocene Sahara

ARCHAEOLOGICAL SITES IDENTIFIED IN THE SOUTHERN AÏR

TREES SIGNIFYING “STONE SIGN”. HOW A TREE IS REPRESENTED ON A 1/1,000,000 METRIC SCALE MAP

Refers to the mental map that nomads have for orientation: it represents the pattern of river valleys crossed in the dry season

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SURVEYS CONDUCTED BY GEOGRAPHICAL INSTITUTES OF THE COLONIAL AUTHORITIES:

ELMEKI

TEGUIDDA-N-TESSOUMT

AGADEZ

20 YEARS OF BIOMASS SURVEILLANCE : ANNUAL PRODUCTION AND ANOMALIES

WaPOR 2.1 LAND COVER CLASSIFICATION 2009-2021

AN ESSENTIAL AGENT TRANSFORMING THE LANDSCAPE, WIND

IUCN (1996) The National Aïr and the Ténéré Nature Reserve (Niger).
Les processus éoliens dans la RNNAT

ECOLOGICAL UNITS IN PHYTOGEOGRAPHY

Fig. 10.– Carte des unités territoriales écologiquement homogènes (UTEH) de la région Tamesna-Aïr-Ténéré.

Kriska M A (2001), Contribution à l'inventaire chorologique des biogéocènoses de l'Aïr et du Tamesna nigérien

ACHIEVING WORLDWIDE NOTORIETY WITH THE PARIS-DAKAR RALLY

MZUNGU EXPEDITIONS

BEFORE THEY DIS#PPEAR

Dates: September 18 – 30, 2023
(The dates can be shifted 1 week earlier, that is for September 11 — 23, 2023, due to probable change of the dates of Cure Salee festival)

Duration: 13 days / 12 nights

Number of participants: 7 – 12

Cost per person:
- 3 490 EUR subject to 12 participants, or
- 3 650 EUR subject to 9 — 11 participants or
- 3 890 EUR subject to 7 — 8 participants, based on double accommodation.

10% early booking discount (in case you book before April 18, 2023)

Everything is included (also domestic flight from Niamey to Agadez, armed security escort), except for:
- international flight to Niamey roundtrip
- Niger visa *(we assist to arrange "visa on arrival" at 110 EUR incl. visa fee and pre-visa)*
- international medical insurance
- dinners in Niamey and Agadez.

Estimated cost of international flight Paris – Niamey – Paris: EUR 550 – 1100 (to be bought on your own. We consult you).
Estimated cost of international flight Istanbul – Niamey – Istanbul: EUR 900 – 1000 (to be bought on your own. We consult you).
Estimated cost of international flight Moscow – Niamey – Moscow: EUR 1500 – 1700 (to be bought on your own. We consult you).

DATES & PRICES

19/02/2023 - 05/03/2023
22/10/2023 - 05/11/2023
02/12/2023 - 16/12/2023

3790 £ Per Person for 11-12 person group
It is possible to extend the stay up to 17 days (Agadez, Sultanate of Dosso and Niamey sightseeing with a cruise on the Niger River) – please contact the office.

DAY 3/4 | Agadez – Aïr Massif – Timia

After breakfast, we will start our Saharan expedition. At the beginning, we will head towards the Aïr Massif. We will stop in one of the most beautiful oases in this part of the Sahara – Auderas and Timia. Then we will set off for the heart of the Aïr Massif where we will meet the inhabitants of this region – the Tuareg people – and we will see the extraordinary rock formations built of Precambrian rocks and materials from long-extinct volcanoes. In the Timia oasis we will see palm groves, waterfalls and remainders of former glory of this ancient crossing of trade routes. We will sleep in tents

B.L.D.

DESERT, DRAW THE BOUNDING BOX ON A MAP

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

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

DESERT, PUBLISH THE TRACK TO THE WEB USING MAPBOX STUDIO

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

DESERT,
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.