Project Update: May 2017

In the frame of the ongoing project, an intensive fieldwork has been done to gather much data on the species distribution in all ecoregions. As such, two of the three projects' objective were reached:

(i) Mapping the geographic distribution of the doum palm across landscapes in Benin.

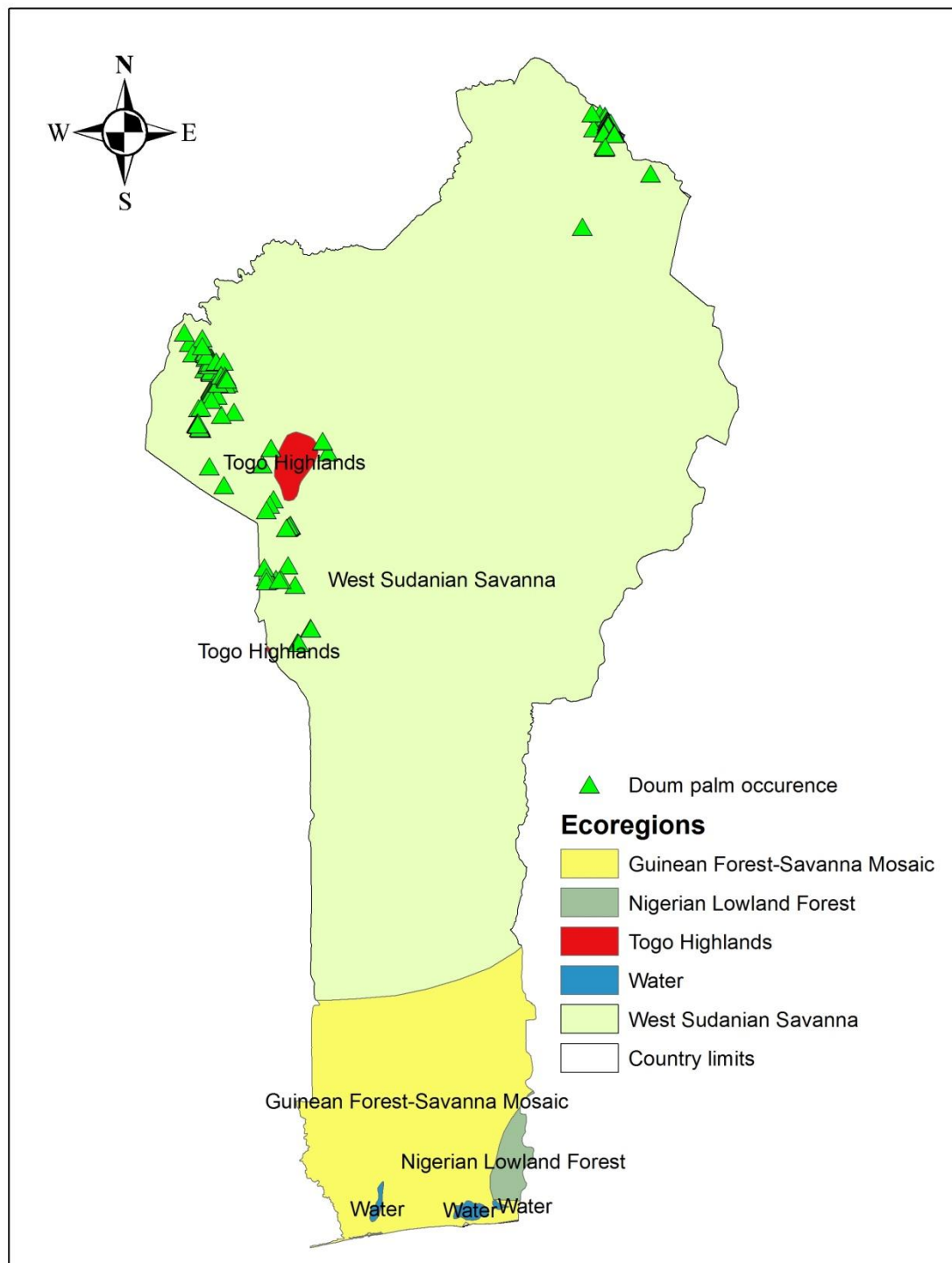(ii) Assessing the suitable areas for the species domestication.

The following results are presented according to each of the project objectives

Mapping the geographic distribution of the doum palm across landscapes in Benin
Fieldwork in the frame of the project revealed that the species was only present I the Sudano-Guinean and Sudnian zone of Benin (See figure 1). In these zones the species was mainly found in agroforestry systems. As regards the ecoregions within the country the species presence was noticed in West African savannas and around the Togo Highlands (towards the mountainous regions in Benin).

Assessing the suitable areas for the species domestication
Exploration of the seven combinations of environmental variables showed that combination of vegetation index and gross primary production were the main drivers for distributions of the species. Partial ROC evaluations indicated that the models were robust, yielding predictions statistically significantly better than random (P < 0.01). Geographically, our results suggested high potential for cultivation of the species across Benin. Models identified the northern (Sudanian) areas, with some extension southward towards the Guineo-Sudanian zone as really suitable (Figure 2). Overlay of potential distributional areas with other environmental features (protected areas network, human demography) showed that areas around some protected areas were suitable for the species; these areas held only sparse human populations (Figure 3).
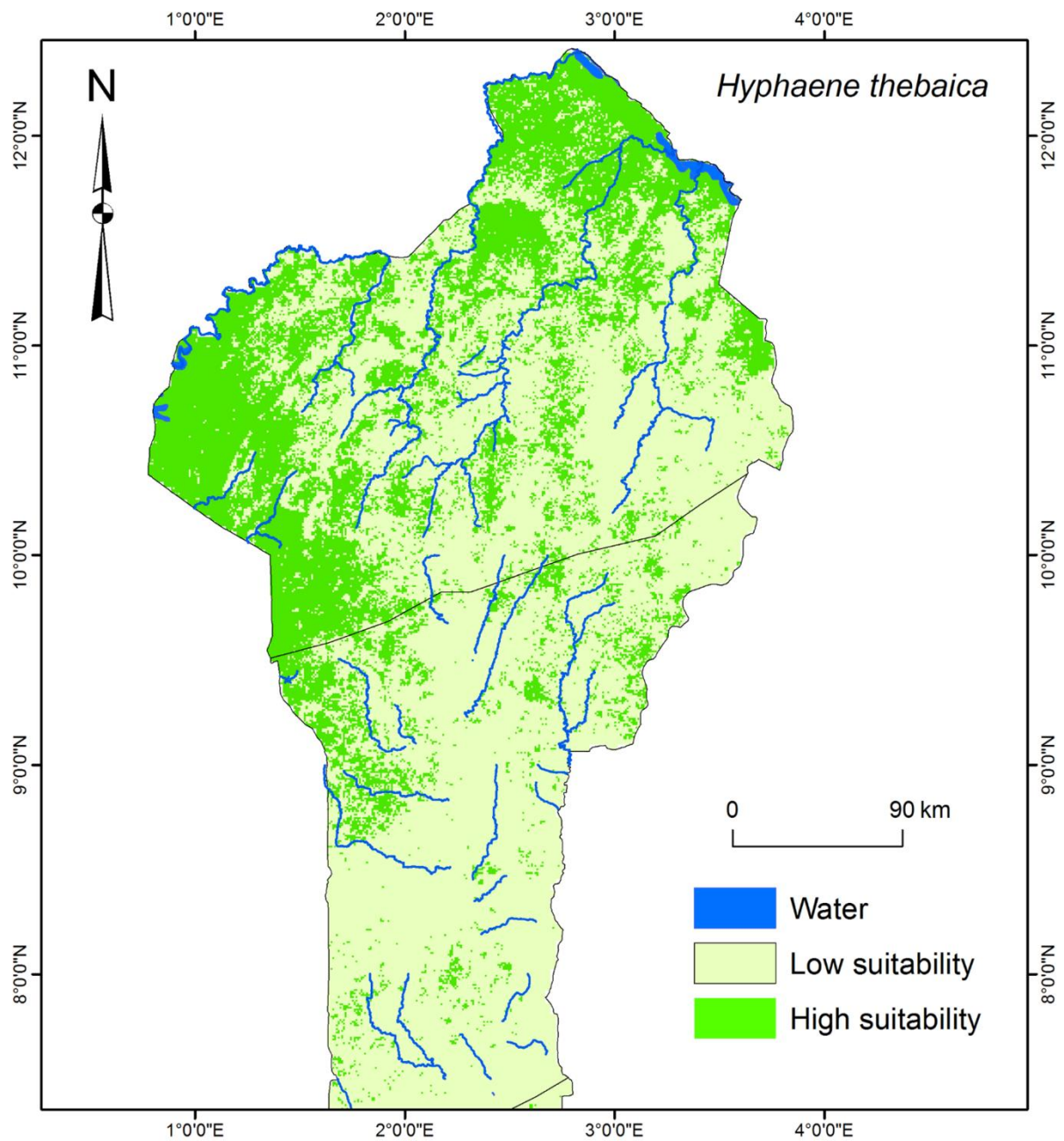
Figure 1: Geographic distribution of *Hyphaene thebaica* across ecoregions in Benin

Figure 2: Suitable areas for *Hyphaene thebaica* domestication across landscapes in Benin
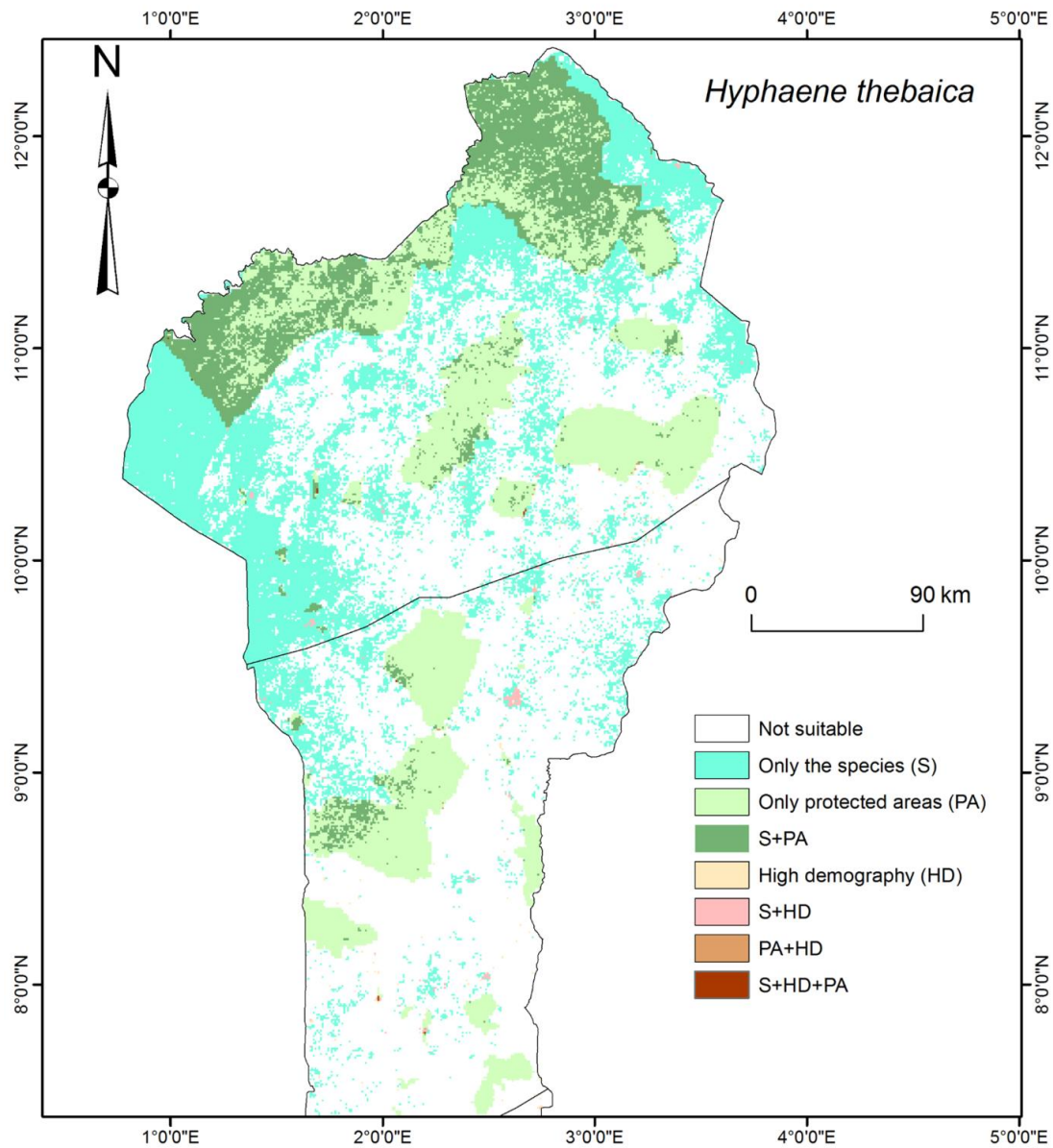
Figure 3: Maps of the suitable areas for *Hyphaene thebaica* and *Raphia sudanica*cultivation with consideration of human population distribution and existing protected areas

Left to right: Falling immature fruit of doum palm during prospection for distribution map; Seedlings of doum palm on a degraded land & Researcher during fieldwork for distribution maps.Photo's by AFR Idohou.