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Report of Monitoring and Assessment of Desert Locust in Africa and Asia

Early December 2020

Desert Locust monitoring and loss assessment in Somalia

Overview

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as GF series in China, MODIS and Landsat series in US, Sentinel series in EU), and self-developed models and algorithms for Desert Locust monitoring and forecasting, the research team constructed the 'Vegetation pests and diseases monitoring and forecasting system', which could regularly release thematical maps and reports on Desert Locust.

This report focuses on the dynamic updates of desert locust monitoring and loss assessment in Somalia from October to November, 2020. The results showed that from October to November 2020, desert locusts in Somalia were mainly distributed in the northwest and the middle of the border with Ethiopia. Compared with September, the newly damaged vegetation area was 975.5 thousand hectares, including 0.6 thousand hectares of cropland, 129.5 thousand hectares of grassland, and 845.4 thousand hectares of the shrub. In December, the desert locust in Somalia will continue to reproduce and migrate southward. It is expected to reach northeastern Kenya in mid-December and spread westward and southward. The next three months coincides with the important crop growing season in Somalia. If not properly controlled, locusts will bring a major threat to agricultural and pasture production. It is necessary to continue the monitoring and early warning of the intercontinental desert locust plague, and organize joint prevention and control in multiple countries, ensuring the safety of agricultural and pasture production, as well as regional stability.

Content

Monitoring and assessment of Desert Locust in Somalia

In early October, Yemeni locust swarms continued to move across the Gulf of Aden to northern Somalia. Somali locust swarms were mainly located in the Garowe region in the northwest and northeast. In mid-to-late October, the northeast locust swarms continued to multiply. Along with the north wind, the northern locust swarms gradually spread to the center and laid eggs, and the number of locust swarms in central Somalia continued to increase. The results showed that, by the end of October 2020, desert locust in Somalia harmed about 591.8 thousand hectares of vegetation area, an increase of 416.3 thousand hectares compared with September 2020 (including 0.1 thousand hectares of cropland, 47.7 thousand hectares of grassland, and 368.5 thousand hectares of shrub) (Figure 1). In early and mid-November, locusts in central Somalia continued to hatch, and the number of locusts continued to increase. Some locust swarms migrated south to northeastern and southern Kenya; in the middle and late November, with the heavy rainfall brought by tropical cyclone Gati, the locusts in the Garowe area continued to multiply and mature, leading to a further increase of the number of locusts. Coupled with the influence of the northerly winds, the locusts in central Somalia continued to spread to the south and eastern Kenya; during the same period, the locusts in eastern Ethiopia also continued to migrate eastward to northeast Somalia. The monitoring results showed that, by the end of November 2020, desert locust in Somalia harmed about 663.8 thousand hectares of vegetation area, an increase of 559.2thousand hectares compared with September 2020 (including 0.5 thousand hectares of cropland, 81.8 thousand hectares of grassland, and 476.9 thousand hectares of shrub) (Figure 2).

The results showed that, from October to November 2020, desert locust in Somalia newly harmed about a total of 975.5 thousand hectares of vegetation area, including 0.6 thousand hectares of cropland, 129.5 thousand hectares of grassland, and 845.4 thousand hectares of shrub, accounting for 0.6%, 3.3% and 1.9% of the total cropland, grassland, and shrub in Somalia, respectively. The affected areas were mainly located in the northwest, central and southern parts of Somalia. Gedo in the south was the largest affected area (with affected area of 210.2 thousand hectares); followed by Hiiraan in the central (with affected area of 190.2 thousand hectares), and again Galguduud in the middle, Mudug in the middle, Bakool in the south, Woqooyi galbeed in the northwest, and Awdal in the northwest, and the affected areas were 141.4, 110.2, 69.8, 69.5, 59.4 thousand hectares respectively. Togdheer in the northwest had affected area of 38.8 thousand hectares, Sool in the north had affected area of 34 thousand hectares, Sanaag in the north had affected area of 22 thousand hectares, and Bay in the south had affected area of 15.5 thousand hectares; Bari in the north, Shabeellaha dhexe in the south, Nugaal in the middle and Jubbada dhexe in the south had less affected areas, with damaged area of 6.8, 4.6, 1.8, 0.8 thousand hectares, respectively.

This study used EU Sentinel-2 remote sensing images to monitor desert locust disasters in the more severely affected areas at

the junction of Somalia and Ethiopia (Figure 3). The data acquisition time is October 2020, and the spatial resolution is 10m. The study area is located in the southern region of Odal, about 25 kilometers southeast of Boorama and 20 kilometers northeast of Weeraar. The vegetation types include grassland, shrubs and cropland, including 1.7 thousand hectares of cropland, 0.3 thousand hectares of grassland, and 180.3 thousand hectares of shrubland. The monitoring results showed that, in October 2020, the affected area of vegetation in the study area was 20.6 thousand hectares, accounting for 11.3% of the total area of the study area. Among them, the shrub was affected most severely with 20.1 thousand hectares, while the affected areas of cropland and grassland are 0.4 thousand hectares and 0.1 thousand hectares, accounting for 11.1%, 23.5%, and 33.3% of the total area of shrub, cropland and grassland, respectively. The results of the study show that desert locusts still threaten the vegetation in Somalia, and continuous monitoring of the locust situation is needed to ensure the agricultural production and food security in Somalia.

Comprehensive analysis shows that in December 2020, the locusts on the border between central Somalia and Ethiopia will continue to multiply and spread. It is expected that in mid-December, a large number of immature locusts will continue to migrate south, reach southern Somalia and invade northeastern Kenya, and spreading to the north and central counties.

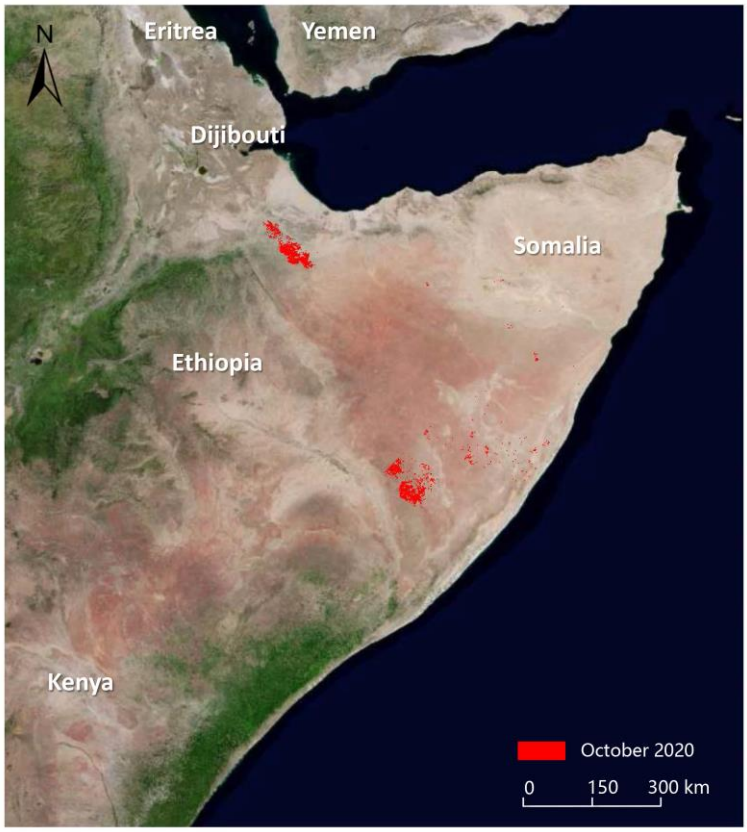

Figure 1 *Monitoring of Desert Locust damage in Somalia (October 2020)*

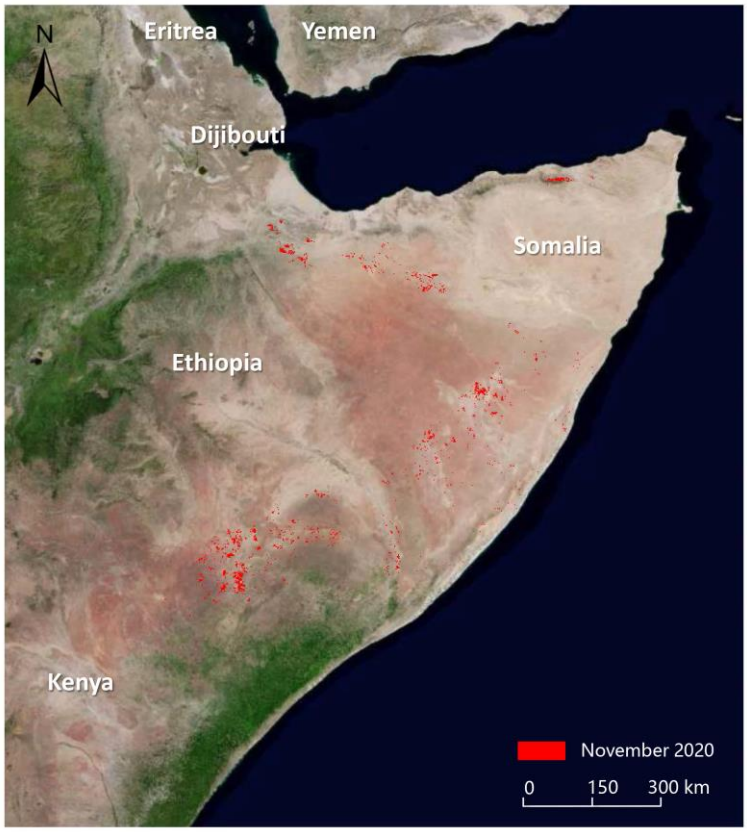

Figure 2 *Monitoring of Desert Locust damage in Somalia (November 2020)*

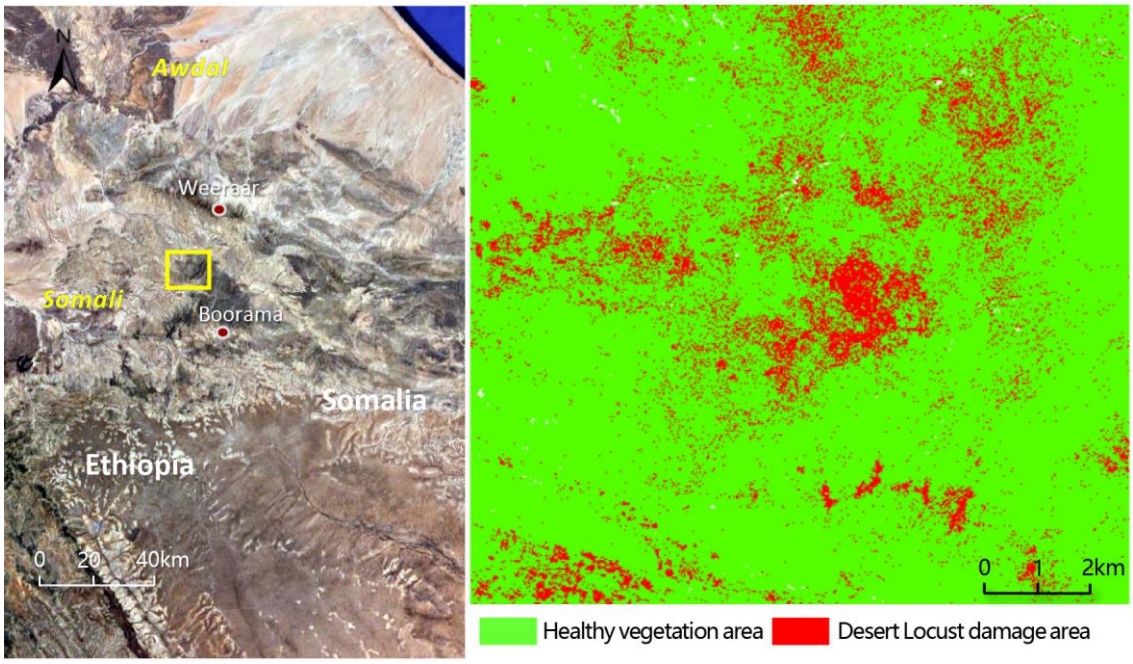

Figure 3 *Monitoring of Desert Locust damage in the key damage area of Somalia based on Sentinel-2 images (October 2020)*

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The Vegetation Pests and Diseases Monitoring and Forecasting system are available under:
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Mission statements: As the science and knowledge service, the Sino-UK Crop Pest and Disease Forecasting & Management Joint Laboratory is to support independent evidence for crop monitoring.

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