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

Mid January 2021

Desert Locust monitoring and loss assessment in Kenya

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 updates of desert locust monitoring and loss assessment in Kenya from September to December 2020. The results showed that from September to December 2020, desert locusts in Kenya were mainly distributed in the northwest, northeast and south. Compared with August, the newly damaged vegetation area was 1119.8 thousand hectares, including 77.3 thousand hectares of cropland, 416.1 thousand hectares of grassland, and 626.4 thousand hectares of shrub. From January to February 2021, locust swarms in eastern Ethiopia and central Somalia will continue to migrate to northern Kenya. The locusts will continue to lay eggs, hatch, mature, and spread throughout the north. It is expected that the number of locust swarms in Kenya will further increase. The next two months coincides with the important crop growing season in Kenya. 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.

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Monitoring and assessment of Desert Locust in Kenya

In September 2020, affected by ground control actions, the number of locusts in Kenya continued to decrease. The locust swarms were mainly located in the north-central Rift Valley Province, i.e., the western and southern regions of Lake Turkana. The results showed that in September, desert locust in Kenya harmed about 371.8 thousand hectares of vegetation area, with an increase of 291.7 thousand hectares (including 21.2 thousand hectares of cropland, 110.4 thousand hectares of grassland, and 160.1 thousand hectares of shrub) (Figure 1). In October, along with rainfall, the locust swarms in the northwest continued to reproduce locally, but ground control operations continued, and the number of locusts decreased significantly. Only a small part of the locust swarms was distributed in the central Rift Valley Province (south of Lake Turkana). The monitoring results showed that, in October, desert locust in Kenya newly harmed about 17.5 thousand hectares of vegetation area, including 2.5 thousand hectares of cropland, 2.7 thousand hectares of grassland, and 12.3 thousand hectares of shrub (Figure 2). In early and mid-November, the locust swarms in central Somalia migrated to the Mandera in northeastern Kenya and laid eggs. The locust swarms in the Samburu in northwest Kenya continued to breed locally; in late November, affected by the north wind, locust swarms of central and southern Somalia continued to migrate to eastern and northeastern Kenya, and spread south to the southern border of Kenya. At the same time, affected by rainfall, locust swarms in the northwest and northeast continued to lay eggs, and the number of locusts continued to increase. The monitoring results showed that, in November, desert locust in Kenya newly harmed about 366.0 thousand hectares of vegetation area, including 26.9 thousand hectares of cropland, 128.7 thousand hectares of grassland, and 210.4 thousand hectares of shrub (Figure 3). In December, locust swarms in southeastern Ethiopia and southern Somalia continued to migrate to northeast and east of Kenya. For the first time, large-scale locust swarms appeared on the eastern coast of Coast Province. The locusts continued to breed, and their population further increased. The monitoring results showed that, in December, desert locust in Kenya newly harmed about 444.6 thousand hectares of vegetation area, including 26.7 thousand hectares of cropland, 174.3 thousand hectares of grassland, and 243.6 thousand hectares of shrub (Figure 4).

The results showed that, compared with August, from September to December 2020, desert locust in Kenya newly harmed about a total of 1119.8 thousand hectares of vegetation area, including 77.3 thousand hectares of cropland, 416.1 thousand hectares of grassland, and 626.4 thousand hectares of shrub, accounting for 1.5%, 2.1% and 1.8% of the total cropland, grassland, and shrub in Kenya, respectively. The affected areas were mainly located in the northwest, northeast and south of Kenya. Eastern Province in the central part was the largest affected area (with affected area of 379.3 thousand hectares); followed by the Rift Valley Province in the west (with affected area of 341.3 thousand hectares), and again North Eastern Province (with affected area of 325.3 thousand hectares),

Coast Province in the south (with affected area of 72.9 thousand hectares), Central Province (with affected area of 0.6 thousand hectares), and Nairobi Area (with affected area of 0.4 thousand hectares). The results of the study showed that desert locusts still threaten the vegetation in Kenya, and continuous monitoring is needed to ensure the agricultural production and food security in Kenya.

Comprehensive analysis shows that, from January to February 2021, the locust swarms in eastern Ethiopia and central Somalia will continue to migrate to Kenya. The locusts in Kenya will continue to multiply, mature and spread to the surrounding areas. It is estimated that the number of locust swarms in Kenya will further increase. If the environment is suitable, locusts in Kenya may migrate westward to Uganda and southward to Tanzania in February. The next two months coincides with the important crop growing season in Kenya. If not properly controlled, locusts will bring a major threat to agricultural and pasture production. Ground surveys and control actions are required to ensure the safety of agricultural and pasture production.

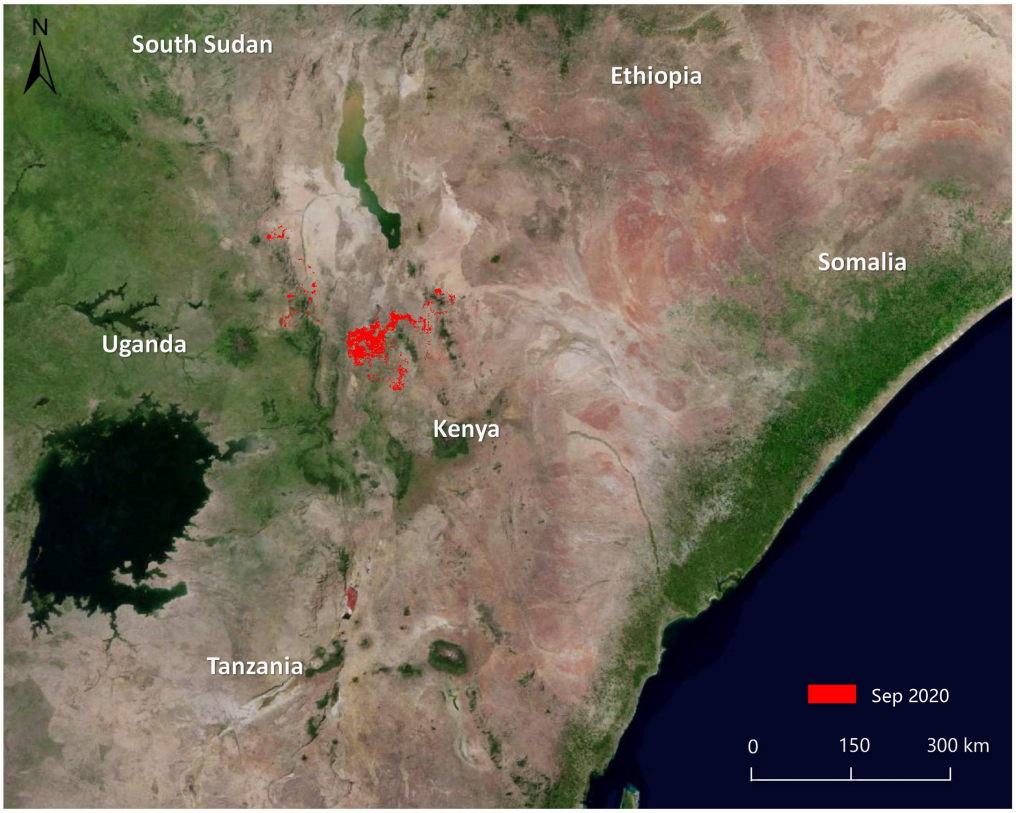

Figure 1 *Monitoring of Desert Locust damage in Kenya (September 2020)*

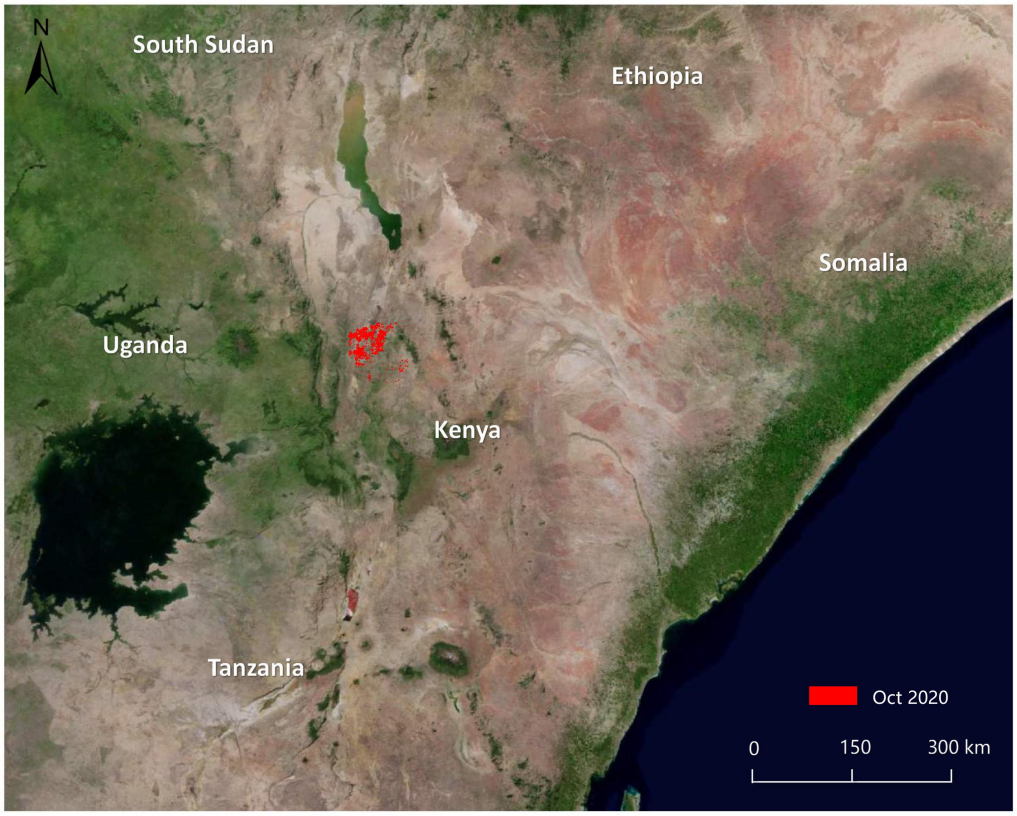

Figure 2 *Monitoring of Desert Locust damage in Kenya (October 2020)*

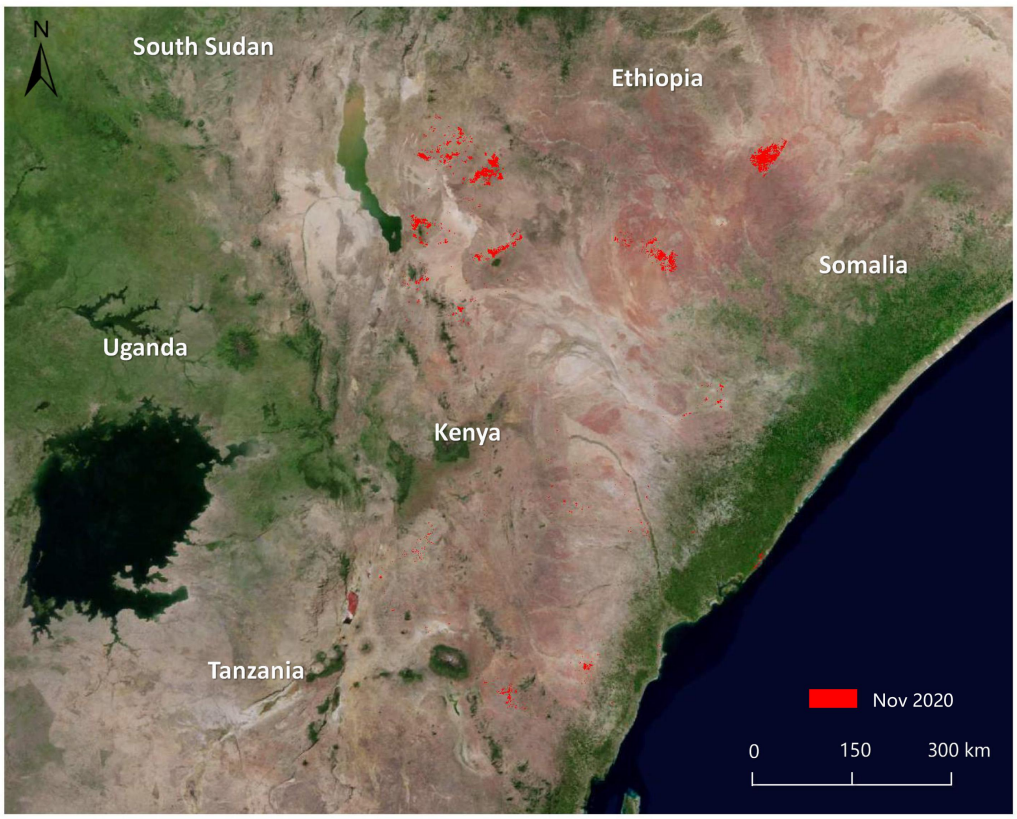

Figure 3 *Monitoring of Desert Locust damage in Kenya (November 2020)*

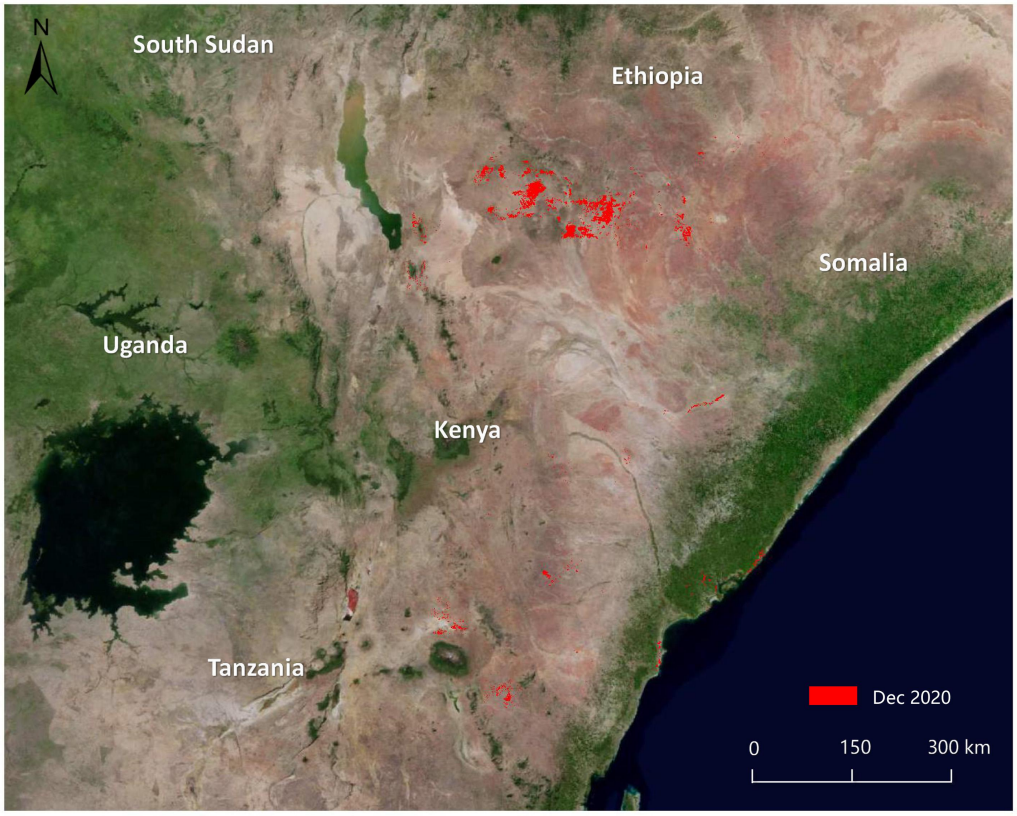

Figure 4 *Monitoring of Desert Locust damage in Kenya (December 2020)*

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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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