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

Early September 2020

Desert Locust monitoring and loss assessment in Ethiopia and 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 'Crop pests and diseases monitoring and forecasting system', which could regularly release thematical maps and reports on Desert Locust.

This report focuses on the latest development of Desert Locust monitoring and loss assessment in Ethiopia and Kenya from July to August. The results show that, from July to the end of August 2020, the Desert Locust harmed about another 1668.5 thousand hectares of vegetation area in Ethiopian, and about 907.1 thousand hectares in Kenya. From September to October, the Desert Locusts in Ethiopia will continue with summer breeding. Due to the impact of rainfall, the number of

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locusts will continue to grow; locusts in northwestern Kenya will stop migrating north due to changes in wind direction and the possibility of locusts moving south from Ethiopia and Somalia to Kenya. At the same time, with the impact of short-term rainfall, locust swarms in Kenya is expected to increase from September to October. The period from September to October coincides with the important crop growing or harvesting season in Ethiopia and Kenya. If not properly controlled, the Desert Locust will continue raging, posing a major threat to agricultural and pasture production of these two countries. It is necessary to continue the dynamic monitoring and early warning of the intercontinental Desert

Locust plague, and organize joint prevention and control in multiple countries to ensure the safety of agricultural and pasture production as well as regional stability. The detailed research results are shown below.

Monitoring and assessment of Desert Locust in Ethiopia

In July 2020, locusts in eastern Ethiopia experienced second-generation spring breeding. Some locust swarms in northwestern Kenya migrated to southern Ethiopia. The locusts in the northern and eastern parts continued to mature, lay eggs and reproduce, expanding the number of locust swarms in Ethiopia. Monitoring results show that until the end of July, the Desert Locust harmed about another 943.8 thousand hectares of vegetation area in Ethiopia (including 217.1 thousand hectares of farmland, 276.5 thousand hectares of grassland, and 450.2 thousand hectares of shrubs). In August, some locust swarms in Ethiopia migrated to southern Ethiopia. Some locust swarms in Yemen migrated to the northeastern part of Ethiopia. Combined with rainfall, the number of locust swarms continued to increase. By the end of August, the Desert Locust harmed about another 724.7 thousand hectares of vegetation area in Ethiopia (including 162.3 thousand hectares of farmland, 357.5 thousand hectares of grassland, and 204.9 thousand hectares of shrubs) (Figure 1).

The results show that from July to August 2020, the Desert Locust harmed another 1668.5 thousand hectares of vegetation area in

total in Ethiopia, including 379.4 thousand hectares of farmland, 634.0 thousand hectares of grassland, and 655.1 thousand hectares of shrub, accounting for 1.6%, 3.6% and 0.9% of the total area of the country's farmland, grassland and shrub respectively. The harmed areas mainly located in the northern and eastern parts of Ethiopia, among which the Afar region in the northern Ethiopia has the largest damaged area of 685.3 thousand hectares, followed by Somali in the east, with damaged area of 324.3 thousand hectares, Tigray in the northwest, and the Southern Nations Nationalities and People Region (SNNPR) in the south, with newly-harmed areas of 177.6 thousand hectares and 177.2 thousand hectares respectively; the damaged areas of Oromiya in the center increased by 154.1 thousand hectares, the newly-harmed area of Amhara in the northwest was 148.5 thousand hectares, and the newly-harmed area of Gambela in the west was the smallest, 1.5 thousand hectares.

Comprehensive analysis shows that the locust swarms in northern Ethiopia will continue summer breeding from September to October 2020. With the impact of rainfall, the Desert Locust swarms will continue to grow. The period from September to October coincides with the important crop growing or harvesting season in Ethiopia. If not properly controlled, the Desert Locust Plague will continue, posing major threat to agricultural and pasture production of the two countries.

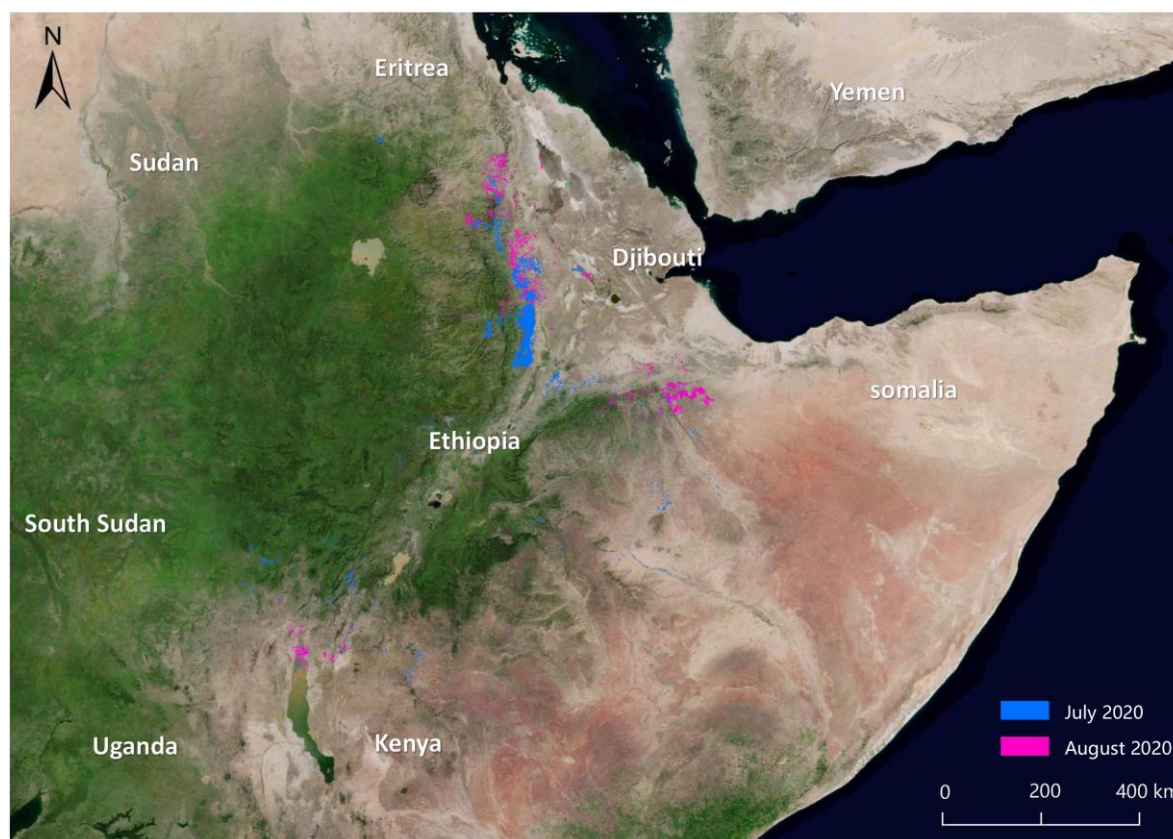


Figure 1 Monitoring of Desert Locust damage in Ethiopia (July to August 2020)

Monitoring and assessment of Desert Locust in Kenya

In July 2020, the second-generation spring breeding of Desert Locusts in northwestern Kenya gradually stopped. Part of the local locust swarms migrated northwest to the summer breeding areas in central Sudan, and part of them migrated north to southern Ethiopia. Combined with the local ground and aerial control efforts, the number of Desert Locust in Kenya has significantly decreased. The results show that, in July 2020, the Desert Locust harmed another 506.4 thousand hectares of vegetation areas in Kenya (including 16.8 thousand hectares of farmland, 248.4 thousand hectares of grassland, and 241.2 thousand hectares of shrub). In August, locust swarms in the northwest continued moving northward. The number of locust

swarms continued to decrease. Although there were still a small number of locust swarms in some areas, the damaged area significantly reduced. In August 2020, the Desert Locust harmed another 400.7 thousand hectares in Kenya (including 28.8 thousand hectares of farmland, 165.9 thousand hectares of grassland, and 206.0 thousand hectares of shrub) (Figure 2).

The results show that from July to August 2020, the Desert Locust harmed another 907.1 thousand hectares of vegetation areas in total in Kenya, including 45.6 thousand hectares of farmland, 414.3 thousand hectares of grassland, and 447.2 thousand hectares of shrub, accounting for 0.9%, 2.1% and 1.3% of the total area of the country's farmland, grassland and shrub, respectively. The harmed areas mainly located in the northwest. Among

them, Rift Valley Province in the west has the largest newly harmed area of 662.0 thousand hectares, followed by the Eastern Province in the central part, 237.0 thousand hectares, and Western Province in the southwest, 7.2 thousand hectares. The newly harmed area was smaller in other provinces. The harmed areas were 400.0 hectares in Coast Province, 300.0 hectares in Central Province, and 200.0 hectares in North Eastern Province.

Comprehensive analysis shows that in September 2020, the locust swarms in northwestern Kenya begin to mature, and the locust swarms begin to lay eggs. As the

temperature is suitable for the development of locusts and accompanied by rainfall, it is expected that from September to October, the number of locust swarms in northwestern Kenya will increase. At the same time, locust swarms in Ethiopia and Somalia may migrate to Kenya with the southerly wind. The period from September to October coincides with important crop growing or harvesting season in Kenya. If the locusts couldn't be controlled effectively, the locust plague will continue, which may bring a heavy blow to the agricultural and pasture production in Kenya.

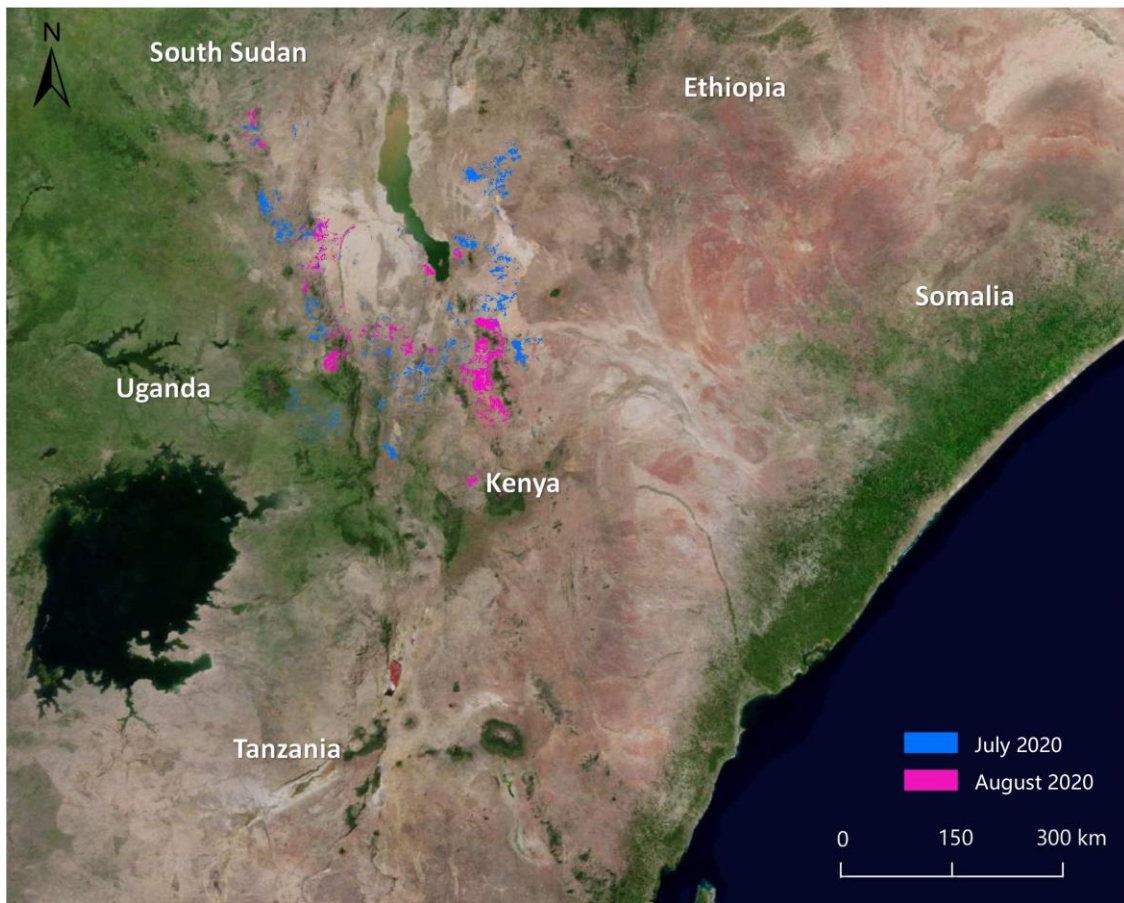


Figure 2 Monitoring of Desert Locust damage in Kenya (July to August 2020)

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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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