Report of Monitoring and 9Assessment of Desert Locust in Africa and Asia

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Desert Locust Monitoring and Loss Assessment in Yemen and Somalia

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as MODIS in the US, etc), 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 Yemen and Somalia. The remote sensing monitoring results showed that, in August 2023, desert locusts were mainly distributed in southwestern Yemen, affecting vegetation areas of 32.7 thousand hectares. In September 2023, desert locusts were mainly distributed in western Red Sea coastal areas and inland regions, impacting vegetation areas of 35.9 thousand hectares; and desert locusts were also mainly distributed in northwestern Somalia, causing vegetation damage to 12.0 thousand hectares. It is expected that in the next two months, the rainfall along the Red Sea coast will be abundant, providing favorable conditions for the survival and reproduction of desert locusts. Swarms from inland Yemen will migrate towards the Red Sea coast, leading to an increase in the population of desert locusts along the Red Sea coast. Meanwhile, in northwestern Somalia, reduced rainfall is unfavorable for the survival of desert locusts. The locust swarms will migrate to the western coast of the Gulf of Aden and engage in small-scale breeding, leading to an increase in locust numbers along the Gulf of Aden coast. This period is the main harvesting season for crops in Yemen, as well as the main planting and growing seasons for crops in Somalia. It is still necessary to pay continuous attention to the dynamics of the desert locust disaster to prevent losses to

agricultural and pasture production. The specific research results are as follows.

■ 1. Desert Locust Monitoring and Loss Assessment in Yemen

In August 2023, desert locusts were mainly distributed in southwestern Yemen. This region was influenced by tropical cyclones, leading to increased rainfall, which provided favorable conditions for locust oviposition and reproduction. The monitoring results showed that in August, the total damaged vegetation area was 32.7 thousand hectares in Yemen, including 3.6 thousand hectares of cropland, 7.4 thousand hectares of grassland, and 21.7 thousand hectares of shrub (Figure 1), accounting for 0.73%, 0.19%, and 0.41% of the total area of the cropland, grassland, and shrub, respectively. Compared with July 2023, the newly damaged vegetation area in Yemen was 2.5 thousand hectares, including 0.8 thousand hectares of cropland, 0.6 thousand hectares of grassland, and 1.1 thousand hectares of shrubs. Ibb had the largest area of vegetation affected, with 10.7 thousand hectares. Followed by Ta'izz, with 8.2 thousand hectares of vegetation affected. The affected areas of vegetation in Abyān, Lahij and Al-Baydā provinces were 6.1, 5.0 and 2.7 thousand hectares, respectively.
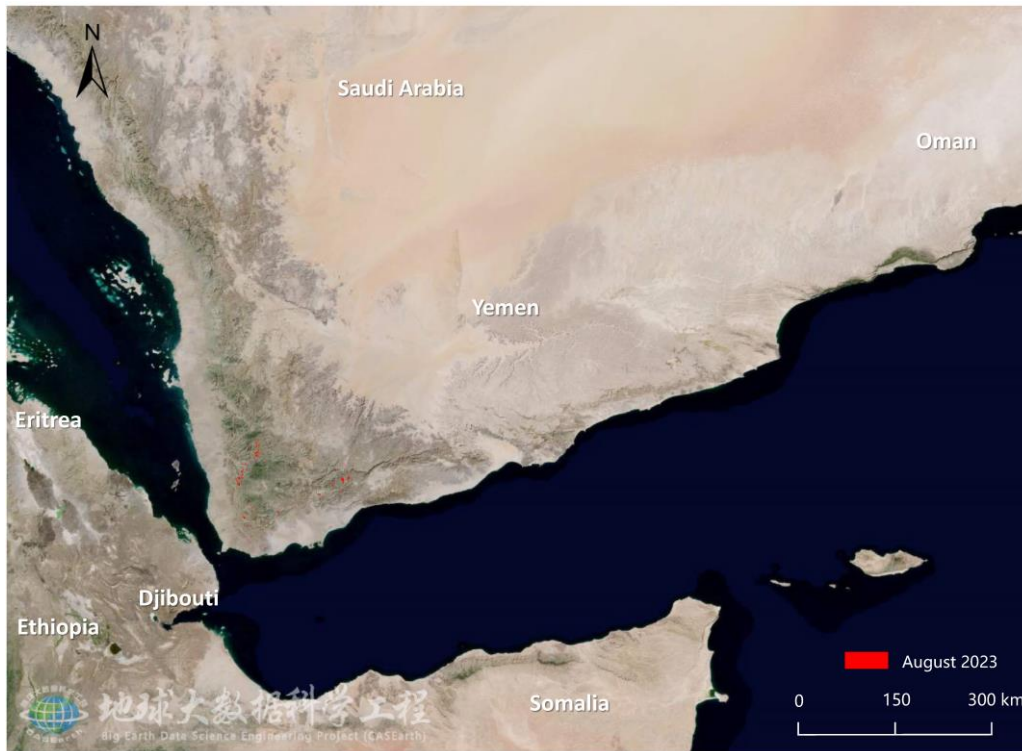
Fig.1 Monitoring of Desert Locust damage in Yemen (August 2023)

In September 2023, the Red Sea coastal areas of Yemen experienced abundant rainfall, promoting vegetation growth and providing favorable conditions for locust oviposition and reproduction. Some swarms from inland regions migrated to Red Sea coastal areas, resulting in an increase in the population of desert locusts in this area. The monitoring results showed that in September, the total damaged vegetation area was 35.9 thousand hectares in Yemen, including 4.9 thousand hectares of cropland, 8.1 thousand hectares of grassland, and 22.9 thousand hectares of shrub (Figure 2), accounting for 1.00%, 0.21%, and 0.43% of the total area of the cropland, grassland, and shrub, respectively. Compared with August 2023, the newly damaged vegetation area in Yemen was 3.2 thousand hectares, including 1.3 thousand

hectares of cropland, 0.7 thousand hectares of grassland, and 1.2 thousand hectares of shrubs. Al-Hudaydah had the largest area of vegetation affected, with 33.3 thousand hectares. Followed by Raimah, with 1.4 thousand hectares of vegetation affected. The affected areas of vegetation in Abyān and Al-Mahwīt provinces were 0.7 and 0.5 thousand hectares, respectively.
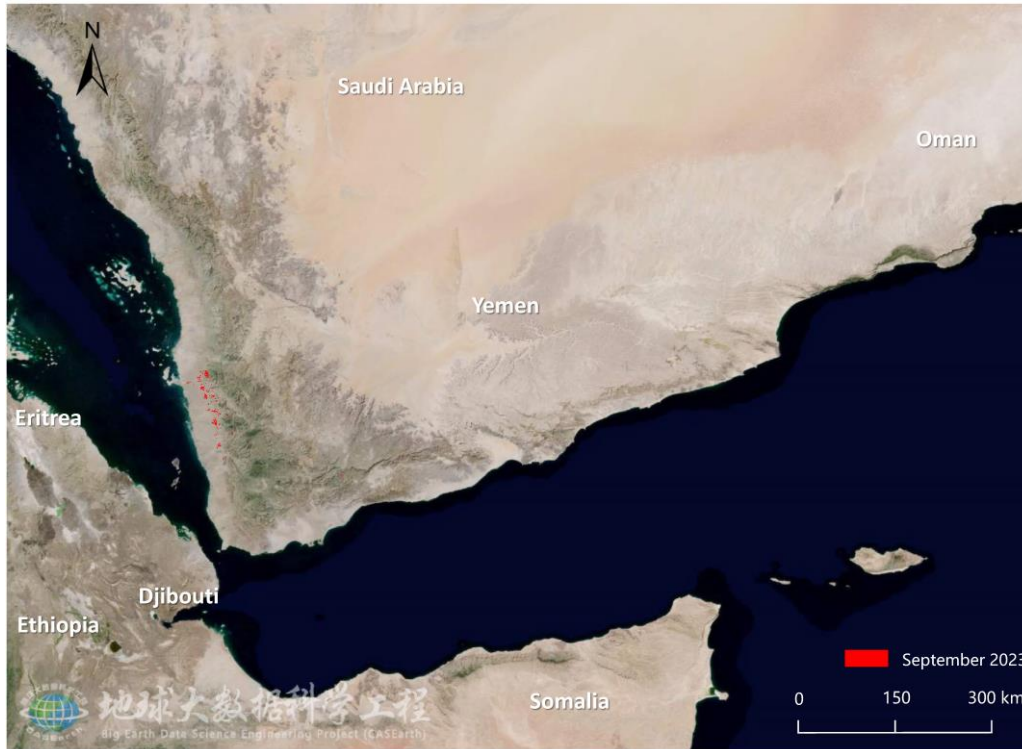

Fig.2 Monitoring of Desert Locust damage in Yemen (September 2023)

■ 2. Desert Locust Monitoring and Loss Assessment in Somalia

In September 2023, the northwestern regions of Somalia experienced reduced rainfall, which was unfavorable for the oviposition and reproduction of desert locusts. As a result, the population of desert locusts in this region decreased. The remote sensing monitoring results showed that in September, desert locusts were mainly distributed in Togdheer and North-West. The total damaged vegetation area was 12.0 thousand hectares in Somalia, including 2.2 thousand hectares of grassland and 9.8 thousand hectares of shrub (Figure 3), accounting for 0.08‰ and 0.05% of the total area of the grassland and shrub. Compared with August 2023, the newly damaged vegetation area in Somalia was 2.5 thousand hectares, including 1.5 thousand hectares of grassland and 1.0 thousand hectares of shrubs. Togdheer had the largest area of vegetation affected, with 6.4 thousand hectares. Followed by North-West, with 5.1 thousand hectares of vegetation affected. The affected area of vegetation in Awdal was 0.5 thousand hectares.
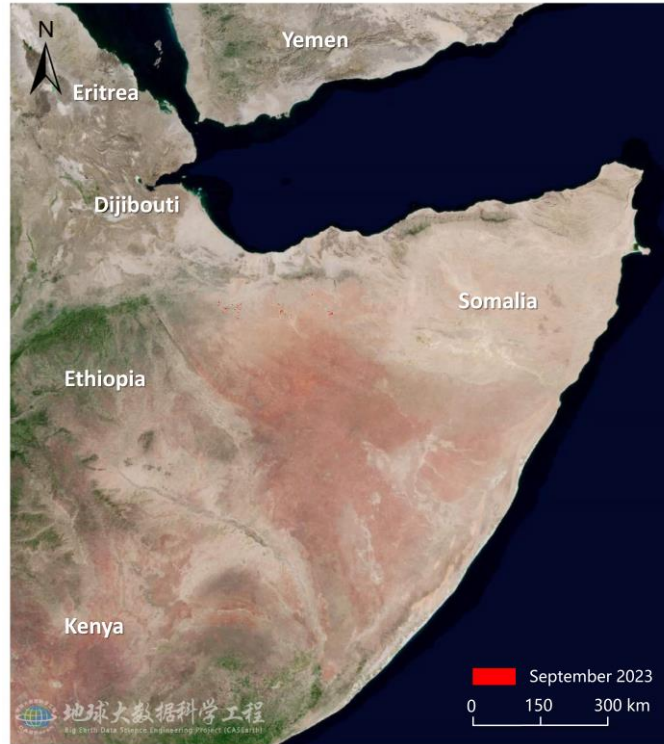
Fig.3 Monitoring of Desert Locust damage in Somalia (September 2023)

The comprehensive analysis shows that, in the next two months, it is expected that the Red Sea coastal areas will receive abundant rainfall, promoting vegetation growth and providing favorable conditions for locust oviposition and reproduction, leading to a further increase in the locust population. Meanwhile, in northwestern Somalia, reduced rainfall is unfavorable for the survival of desert locusts. Consequently, locust swarms are expected to migrate towards the western coast of the Gulf of Aden and engage in small-scale breeding, resulting in an increase in the number of desert locusts along the Gulf of Aden coast. It is still necessary to continue to pay attention to the dynamics of the desert locust disaster in Yemen and Somalia to prevent repeated losses to agricultural and pasture production.

Citation

Report of Monitoring and Assessment of Desert Locust in Africa and Asia, (2023). *Desert Locust Monitoring and Loss Assessment in Yemen and Somalia.* Beijing, China: RSCROP.

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