Food and Agriculture Organization of the United Nations

Locust Watch
Locusts in Caucasus and Central Asia

# LOCUST BULLETIN No. 55

FAO - Plant Production and Protection Division (AGP) *15 June 2018*

**Situation level: CAUTION in Kazakhstan (DMA & CIT), Kyrgyzstan (CIT), Russia (DMA & CIT) and Tajikistan (DMA)**

**Situation level: CALM elsewhere or for the other locust pests**

## General situation during May 2018 Forecast until mid-July 2018

**Moroccan Locust (DMA) hopper development was in progress in Kazakhstan and the Russian Federation while it was coming to an end in Azerbaijan and Georgia as well as in southern Central Asian (CA) countries where fledging - and even mating - had already started. Cross-border movements of adult groups were reported. During the forecast period, DMA breeding will generalize in all those countries and the species will start disappearing in southern CA. Italian Locust (CIT) hatching occurred and hopper development was in progress in all countries except Azerbaijan and Afghanistan, where it was not reported as a pest. Migratory Locust (LMI) hatching started in Uzbekistan and Kazakhstan. For both CIT and LMI, fledging will start during the forecast period. Since the beginning of the national campaigns, more than 1 442 000 ha have been treated mainly against DMA hopper bands.**

**Caucasus**. DMA hopper development was coming to an end in **Azerbaijan** and **Georgia** and young adults started forming mobile groups at the border between the two countries. CIT hopper development was in progress in Georgia while hatching should have started from late May in Armenia. A bit more than 29 600 ha were treated in May in Azerbaijan and Georgia.

**Central Asia**. DMA hopper development was coming to an end, fledging occurred and mating started in southern Central Asian countries; mobile adult groups were reported in **Tajikistan**, at the border with **Kyrgyzstan** and **Uzbekistan.** DMA hopper development was in progress in **Kazakhstan** and **Russia**. CIT hopper development was in progress in all countries, except in Afghanistan where the species was not reported. In Kyrgyzstan, the situation was locally considered as an outbreak. LMI hatching started in late May in Kazakhstan and Uzbekistan where young hoppers were observed. In May, almost 1 007 000 ha were treated.

## Weather and ecological conditions in May 2018

**Warmer than usual weather generally prevailed and rain fell locally but the natural vegetation was drying out or dry, except in Kyrgyzstan.**

In **Caucasus,** warm weather prevailed. Despite precipitation, natural vegetation was drying out or dry in Azerbaijan and Georgia.

In Armenia, during April, daily temperatures ranged from +10 to +15°C in lowlands and from +5 to +10°C at foothills; no heavy rain was reported. In May, there were heavy rains and thunderstorms in the Ararat valley, whose amount exceeded the norm. Temperatures ranged from 15 to 20°C during the day in lowlands (from 5 to 10°C at night) and from 5 to 15°C at foothills.

In Azerbaijan, the weather was mostly warm and suitable for hopper development in May. Average temperatures ranged from 18 to 25°C, reaching a maximum of 24/26°C. No precipitation was recorded except on 16-23 and 22-25 May, when showers and heavy rain fell. South-easterly and north-westerly winds prevailed at a speed of 3 to 4-6 m/s and up to 14-16 m/s in gusts. Natural vegetation cover was low and dry in traditional locust habitats. Elsewhere, vegetation (agricultural crops, perennial plantations, meadows and pastures) was at the maturity stage; winter cereals were ripe and harvesting was in progress.

In Georgia, temperatures ranged from a minimum of 6.8°C to a maximum of 29.5°C and amount of precipitation was of 142 mm. Natural vegetation was of medium density and was drying out.

In **Central Asia**, the weather was highly variable throughout the region but in general warmer than usual.

In Afghanistan, a late report indicates that the natural vegetation was completely dry because of low amounts of rain and snow during winter, from December 2017 up to mid-April 2018. Rainfall started in late April in some provinces, where vegetation greening was observed, while snow and negative temperatures were reported from the highlands in Badakhshan, Badghis and Ghor, which resulted in delayed hatching or hopper mortality.

In Kazakhstan, the weather was highly variable. In the South, the weather was unstable, with clear and cloudy days and light showers (from 1 to 49 mm). The average daily temperature ranged from 7.4 to 29.5°C with minimum of 2.8°C (at night) and maximum of 34.0°C. Relative humidity ranged from 18 to 100 %. North-easterly and north-westerly winds prevailed at a speed of 1-9 m/s and up to 25 m/s in gusts. In the East, the weather was unstable with precipitations amounting 54.8 mm as rain and snow. The average daily temperature was of 10.8°C with minimum of 3.0°C (with drop as low as -3.0°C) and maximum of +26.0°C. Relative humidity was of 64.6 %. North-westerly and south-easterly winds prevailed at a speed of 1-9 m/s and up to 25 m/s in gusts. In the West, the weather was variable with sunny, cloudy, rainy and windy days. The average daily temperature ranged from 1.5°C to 32.5°C, with minimum of -1.1°C and maximum of 37.0°C. Relative humidity ranged from 14 to 83 %. North-westerly and north-easterly winds prevailed at a speed of 0.8-7.0 m/s and up to 15 m/s in gusts. In the North, the weather was variable with warm but also negative temperatures, cold gusty winds and precipitations in the form of rain and snow (from 5.5 to 51.8 mm). The average daily temperature ranged from 0.8°C to 20.5°C, with minimum as low as -4.0°C and maximum of 29.0°C. Relative humidity ranged from 28 to 94 %. South-westerly and north-westerly winds prevailed at a speed of 1-8 m/s and up to 28 m/s in gusts.

In Kyrgyzstan, temperatures ranged from 10 to 15°C at night and from 22/27°C to 28/33°C during the day in the plains and from 7 to 12°C at night and 18/23°C to 24/29°C during the day at foothills. In the South, average monthly air temperature was of 18/20°C (14/16°C at foothills) and of 12/14°C in Naryn (4/9°C at night and 20/25°C during the day). Overall, they were above the climatic norm by 1 to 2°C. Rain amount was of 35-55 mm in the plains and 82-155 mm at foothills (above the norm). Vegetation was green with a 6-10 cm height and a dense cover.

In the Russian Federation, the weather was warmer (by at least 2°C) and dryer (43 to 68% of the normal rain amounts) than usual, except in the Siberian and Far East Federal Districts (FD). In southern regions of the Central FD, the average monthly temperature was of 17.9°C, i.e. 3.6°C above the normal. Rain averaged 37 mm, representing 68% of the norm. In the South FD, average temperature was of 19.7°C, i.e. almost 3.5°C above the normal. Rain amount of 21 mm represented 43.6 % of the norm. In North Caucasus FD, the average temperature of 18.02°C was above the norm by 2.6°C; rain amounted 42.6 mm, representing 48 % of the norm. In Volga FD, average temperatures was of 15.08°C, i.e. 1.88°C above the normal. Rain amounted 21.13 mm, representing 53.25 % of the norm. In the Ural FD, average temperature was of 9.5°C, i.e. 2.03°C below the norm. Rain amounted 47.67 mm, representing 109 % of the norm. In the Siberian FD, the average temperature was of 8.55°C,

i.e. 2.35°C below the norm. Rain amounted 47 mm, representing 143 % of the norm. In the Far East FD, the average temperature was of 11.35°C, i.e. 1.75°C above the normal, and rain amounted 22.3 mm, representing 45 % of the norm.

In Tajikistan, the month of May was warmer than in 2017 by 3-6°C, with minimum of 27°C and maximum of 38°C in the sub-mountainous regions. In Khatlon valleys, temperatures exceeded 38°C while they were over 24°C in Sughd. From 14 to 26 May, hurricanes brought strong winds and heavy rains. Usual agricultural works continued in cotton plantations. In southern Khatlon, harvest of vegetable and fruits (onions, potatoes, apricots, sweet cherries) was in progress while it was completed for melons grown under films; grain harvesting also started in the southern regions. According to meteorological forecast, June should be very hot with temperatures exceeding 44°C in the central part of the country and ranging from 38 to 41°C in Sughd.

In Uzbekistan, relatively low temperatures were observed as compared to May 2017, ranging from 12 to 15°C at night and 16 to 28°C during the day. Heavy rain fell for the second consecutive month (up to 5-9 times the norm) on Surkhan-Sherabad and Karshi steppes in the South as well as in Jizzax, Samarkand and Tashkent provinces, resulting in local mudflows but without contributing to the development of the vegetation. Natural vegetation was generally dry and sparse at a density of 2-3 plants/m² and a height of 15-25 cm.

## Area treated in May 2018

| | |
|---|---|
| Afghanistan | 37 050 ha (April & May) |
| Azerbaijan | 28 900 ha |
| Georgia | 705 ha |
| Kazakhstan | 583 800 ha |
| Kyrgyzstan | 53 037 ha |
| Russia | 181 950 ha |
| Tajikistan | 39 621 ha |
| Uzbekistan | 130 420 ha |

## Locust situation and forecast

(see also summary on page 1)

### CAUCASUS

#### Armenia

• **SITUATION**

A late report indicates that the situation was calm in April and that no monitoring was carried out as weather conditions had not allowed hatching yet. The locust situation continued to be calm in May and no monitoring was carried out because of heavy rains. Italian Locust (CIT) hatching should have started in late May.

• **FORECAST**

*Based on analysis from last year campaign, limited Italian Locust (CIT) infestations only are expected mainly in Ararat and Artashat regions. Hopper development will take place during the forecast period.*

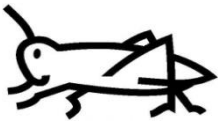
#### Azerbaijan

• **SITUATION**

DMA late instar hoppers and young adults were present in three of the six traditional areas: Jeyranchel and Eldar steppes in the north-west, close to the border with Georgia; Garasu and Padar plain in the East; as well as Kharamin plain in the South. Fledging started by the end of the month. Back and forth movements of young adults where observed close to the Georgian border. Control operations using two pyrethroids were carried out in the three above-mentioned areas on a total of 28 900 ha.

• **FORECAST**

*Hoppers having escaped control operations will fledge during the first half of June. From the end of the month, warm weather will boost adult development and mating and egg-laying will occur from early July.*



**Georgia**

**• SITUATION**

Survey and control operations were carried out in Kvemo Kartli and Kakheti (Dedoplistskaro municipality), close to the border with Azerbaijan in both regions. DMA was present as late instar hoppers and immature adults while CIT hoppers only, of 2nd (40%), 3rd (50%) and 4th (10%) instars, were observed. In Kvemo Kartli, 340 ha were treated against mixed hopper bands of DMA and CIT while in Kakheti 365 ha were treated against CIT hopper bands only. Pesticides used were two pyrethroids and one organophosphate in EC and ULV formulations applied with vehicle-mounted sprayers.

**• FORECAST**

*DMA mating and egg-laying will take place by the end of June. CIT hopper development will continue and fledging occur; breeding could start before the end of the forecast period. Control operations against CIT will continue in June.*

## CENTRAL ASIA

**Afghanistan**

**• SITUATION**

Survey and control operations continued in April and May against DMA populations. In May, DMA was present as hoppers or adults, depending on the prevailing temperatures in the 11 provinces of the northern half of the country where it was reported. Indeed, hatching had started in early March in the North and at mid-April in the West. Since the beginning of the campaign, 40 208 ha have been treated in 11 provinces as follows: from 6 300 to 7 200 ha treated in Baghlan, Balkh and Takhar; from 3 500 to 4 000 ha in Ghor, Kunduz and Sar-i-Pul; around 2 500 ha in Faryab and Samangan; and less than 1 000 ha in Badghis, Herat and Nangarhar. Pesticides used (so far 23 586 litres) are pyrethroids and an Insect Growth Regulator, all in ULV formulation.

**• FORECAST**

*DMA fledging, which started in May in some infested provinces, will generalize during the 1st half of June in all concerned areas while mating followed by egg-laying should begin during the same period. It is expected that drying vegetation, which will result in locust movements towards cultivated areas, and insecurity, which will hamper control operations, may result in some crop damage.*

**Kazakhstan**

**• SITUATION**

DMA hopper surveys continued in May in South-Kazakhstan and Zhambyl. They were carried out on 1 981 100 ha of which 756 400 ha (38.2%) were infested, including 558 800 ha above the economical threshold (ET). A total of 558 800 ha were treated.

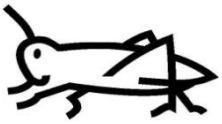
CIT egg-bed surveys were carried out on 301 000 ha throughout the country. Egg-pods were found on 71 500 ha (23.7%). The number of eggs per pod varied from 11 to 45. From 0.1 to 90 % of the CIT eggs were damaged. CIT hopper surveys started and concerned 1 309 000 ha, of which 165 100 ha (12.6%) were infested including 73 100 ha (5.6%) above ET. As of 31st May, 1st to 3rd instar hoppers were present in the South and 1st and 2nd instar hoppers in the North. The most infested provinces were West-Kazakhstan (29 000 ha infested above ET), Zhambyl (16 500 ha), Aktobe (14 300 ha) and Almaty (10 000 ha); areas infested above ET were also detected in Kyzylorda (2 200 ha) and Atyrau (1 100 ha). A total of 25 000 ha were treated.

LMI egg-bed surveys were carried out on 64 700 ha; egg-pods were found on 9 400 ha (14.5 %). The number of eggs per pod varied from 30 to 110. From 1 to 33 % of the LMI eggs were damaged. LMI hopper surveys also started, covering 214 600 ha. First and 2nd instar hoppers were found on 1 000 ha but below ET. Therefore, no control operations were carried out against that locust pest.

A total of 583 800 ha were treated mainly against DMA hopper bands (almost 96% of the treatments).

**• FORECAST**

*DMA mating and egg-laying are expected during the 1st and 2nd decades of June in South-Kazakhstan and during the 2nd and 3rd decades of June in Zhambyl.*



*CIT hopper development will continue in June with presence of 3rd, 4th and 5th instar hoppers in most provinces as well as fledging in southern and western provinces. LMI hopper development will continue and fledging will occur in the South and the West while hatching will start and be followed by hopper development up to 5th instar in the North.*

**Kyrgyzstan**

**• SITUATION**

DMA surveys were conducted on 40 316 ha of which 35 000 ha were infested at an average density of 4-25 individuals/m². DMA hoppers were of 4th and 5th instars. At the end of the month, imagos prevailed, which formed flying groups and started mating. A total of 37 700 ha were treated including 23 500 ha in Jalal-Abad, 5 900 ha in Osh and 8 300 ha in Batken.

CIT hopper surveys were carried out on 36 089 ha of which 28 569 ha were infested at an average density of 8-27 hoppers/m², including 27 991 ha in Naryn (2nd/3rd instars) and 598 ha in Chui (3rd/4th instars). In Naryn, a CIT outbreak occurred, a situation which had not been observed since 2004. A total of 15 337 ha were treated, of which 14 395 ha in Naryn and 942 ha in Chui.

Control operations were carried out by ground (vehicle-mounted sprayers and tractors –the latter in Chui only) using three pyrethroids and one organophosphate in EC and ULV formulation.

**• FORECAST**

*DMA mating and egg-laying will generalize in June and control operations against that pest should be completed by the end of the month in Jalal-Abad, Osh and Batken. CIT hopper development will continue in Naryn and Chui -as well as in Jalal-Abad, Osh and Batken, where it is mixed with DMA populations- while hatching is expected in Talas during the second decade of June. CIT control operations should cover more than 25 000 ha.*

**Russian Federation**

**• SITUATION**

Spring egg-pod surveys came to an end while hopper surveys started. Locust hoppers were found on 359 730 ha, including 245 000 ha above the economical threshold (ET); in addition, grasshopper nymphs were found on 132 720 ha, including 6 700 ha over ET. In the Central FD, no locust hoppers were observed but grasshopper nymphs were present on 4 890 ha at an average density of 0.13 hopper/m². In the South FD, locust hoppers were observed on 69 020 ha at a density ranging from 27 to 250 hoppers/m². Grasshopper nymphs were also found on 38 930 ha at a density ranging from 1.34 to 15 hoppers/m². In North Caucasus FD, locust hopper populations were recorded on 290 540 ha at a density of 29.25-600 hoppers/m²; nymphs of grasshoppers were found on 59 970 ha at a density of 1.59-19 hoppers/ m². In the Volga FD, locust hoppers were observed on 180 ha at a density of 1.5-20 hoppers/ m²; nymphs of grasshoppers were found on 3 490 ha at a density of 0.59-8 hoppers/ m². In the Ural FD, no locust hoppers were recorded but grasshopper nymphs were found on 5 140 ha at a density of 1.59- 4 hoppers/m². In the Siberian FD, no locust hoppers were observed but grasshopper nymphs were present on 18 180 ha at a density of 2.58-46 hoppers/m². In the Far East FD, no locust hoppers were observed but grasshopper nymphs were found on 2 130 ha at a density of 0.15-2 hoppers/m². A total of 181 950 ha were treated in South and North Caucasus FDs.

**• FORECAST**

*Locust hatching will occur in Central, Ural and Siberian FDs and hopper development will take place everywhere in June. Fledging should start in late June.*

**Tajikistan**

**• SITUATION**

DMA hopper development continued in Khatlon, Sughd and Region of Republican Subordination (RRS) and fledging started in late May. By the end of the month, DMA 4th and 5th instar hoppers prevailed in Khatlon valleys while 3rd and 4th instar hoppers prevailed in hilly areas of Khatlon, Sughd and RRS. Surveys to monitor adult group movements, mating and egg-laying started. In Sughd, back and forth DMA flights were reported in the

East with Batken province, Kyrgyzstan, and in the West with Jizzah province, Uzbekistan. Joint efforts were implemented to control them and protect the crops.

CIT hatching, which started on 27 April in Sughd and lasted throughout the month of May (last hatching observed on 28 May), was followed by hopper development. By the end of the month, nine of the 11 districts of northern Sughd were infested by 2nd and 3rd instar hopper bands.

In May, a total of 39 621 ha were treated against hopper populations, of which 32 238 ha against DMA (more than 81% of the treatments) mainly in Khatlon and Sughd, and 7 383 ha against CIT, in Sughd.

**• FORECAST**

*DMA life cycle will come to an end during the forecast period. CIT hopper development will continue with fledging occurring prior to the end of the forecast period*.

**Turkmenistan**

**• SITUATION**

No report was received. In view of the situation in the neighbouring countries, DMA fledging should have occurred and mating and egg-laying be in progress.

**• FORECAST**

*DMA life cycle should come to an end at the beginning of the forecast period.*

**Uzbekistan**

**• SITUATION**

As it was the case for its hopper development, DMA fledging was very rapid when it took place at mid-May. Imago morphology is different than usual with a body size twice smaller and an appearance of solitary rather than gregarious individuals. Frequent cases of cannibalism were observed. These changes seem to be related with the lack of food as vegetation, although sparse, is only present in Navoiy and Tashkent provinces.

CIT hopper development was in progress in Sirdaya and Tashkent provinces as well as in the Fergana valley. Hatching was noted at the end of May in Karakalpakstan.

LMI hatching started at the end of May, mainly around the Aral Sea.

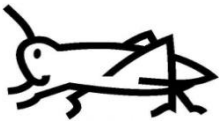
In May, control operations were carried out on 130 420 ha. Overall, since the beginning of the 2018 locust campaign, 393 632 ha have been treated mainly against DMA (87%) in the south-eastern part of the country (Kashkadarya, 136 679 ha and Surkhandarya, 98 516 ha, i.e. almost 60% of all control operations) as well as in the following other provinces: Andijon 2 486 ha (CIT), Bukhara 10 890 ha (grasshoppers), Fergana 3 575 ha (DMA), Jizzax 55 483 ha (DMA), Namangan 1 953 ha (CIT), Navoiy 24 885 ha (DMA), Samarkand 24 789 ha (DMA), Syrdarya 5 180 ha (CIT), Tashkent 18 780 ha (CIT) and Xorazm 814 ha (grasshoppers). Pesticides remained the same as the previous months, i.e. pyrethroids and imidacloprid as well as, locally, an Insect Growth Regulator (IGR). They are sprayed in EC and ULV formulations by ground (motorized hand-held, back-pack and tractor-mounted sprayers) and by air (aircraft and hang-glider).

**• FORECAST**

*DMA mating and egg-laying will generalize in June and control operations against that locust pest will come to an end while they will probably intensify against CIT hoppers and probably start against LMI.*

## Announcements

**Locust warning levels.** A color-coded scheme indicates the seriousness of the current situation for each of the three main locust pests: green for calm, yellow for caution, orange for threat and red for danger. The scheme is applied to the Locust Watch web page dedicated to the current locust situation ("Locust situation now!") and to the regional monthly bulletin header. The levels indicate the perceived risk or threat of current locust infestations to crops and appropriate actions are suggested for each level.



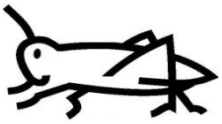
**Locust reporting.** During calm (green) periods, countries should report at least once/month and send standardized information using the national monthly bulletin template. During caution (yellow), threat (orange) and danger (red) periods, often associated with locust outbreaks and upsurges, updates should be sent at least once/week. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to CCA-Bulletins@fao.org. Monthly information received by the 5th of each month will be included in the CCA Locust Bulletin to be issued by mid-month; otherwise, it will not appear until the next bulletin. Reports should be sent even if no locusts were found or if no surveys were conducted.

**May 2018 events and activities**

- **In-depth introduction of Caucasus and Central Asia Locust Management System (CCALM)** delivered by Ms N. Muratova, FAO International Consultant, GIS Expert, to the benefit of five Azeri Locust Experts on 5-7 May in Baku, Azerbaijan, and to the benefit of five Georgian Locust Experts on 8-10 May in Tbilisi, Georgia.
- **Training-of-Trainers on locust management**: two briefing sessions on locust spraying and risk reduction, including ASDC, delivered to the benefit of 34 Kyrgyz Locust Experts on 3-4 May in Aravan (Jalal-Abad) and 22-23 May in Batken, Kyrgyzstan.
- **Joint or cross-border surveys**:
  - Cross-border survey between Kyrgyzstan (Batken) and Tajikistan (Sughd) carried out on 14-19 May, involving 13 participants, five for Kyrgyzstan, three for Tajikistan, one for FAO and four for the Japan Embassy and Japan International Cooperation Agency (JICA) Office in Tajikistan;
  - Joint survey between Afghanistan and Tajikistan scheduled in Khatlon, Tajikistan, on 20-26 May, postponed or cancelled.
- **Asian Migratory Locust situation in the Aral Sea area, Karakalpakstan, Uzbekistan**: assessment mission carried out on 17-26 May.
- **Master on Locust biological control, Uzbekistan**: second field mission by the Uzbek Fellow carried out on 12 May-1 June in Kashkadarya and in Surkhandarya.
- **Moroccan Locust situation in Zhambyl and South-Kazakhstan oblasts, Kazakhstan**: technical support provided for the preparation of a FAO "Technical Cooperation Programme Facility" (TCPf) in view of technical advisory missions on Moroccan Locust situation and survey and control methodology.
- **Human Health and Environmental issues**:
  - Kyrgyzstan: second and third missions of the Human Health and Environmental Monitoring Team carried out on 8-12 May in Nookat and Aravan (Osh) and 29 May-2 June in Leilek and Batken districts, Batken region;
  - Tajikistan: first set of missions of the Human Health and Environmental Monitoring Team carried out on 2-6 May in B.Ghafurov, Zafarobod, Konibodom and Asht (Sughd), 7-10 May in Vakhsh Valley (Khatlon) and 14-16 May in Kulob area (Khatlon).
- **Procurement of locust survey and control equipment**: ongoing process.
- **Resource mobilization**: ongoing process.

**Forthcoming events and activities in June 2018**

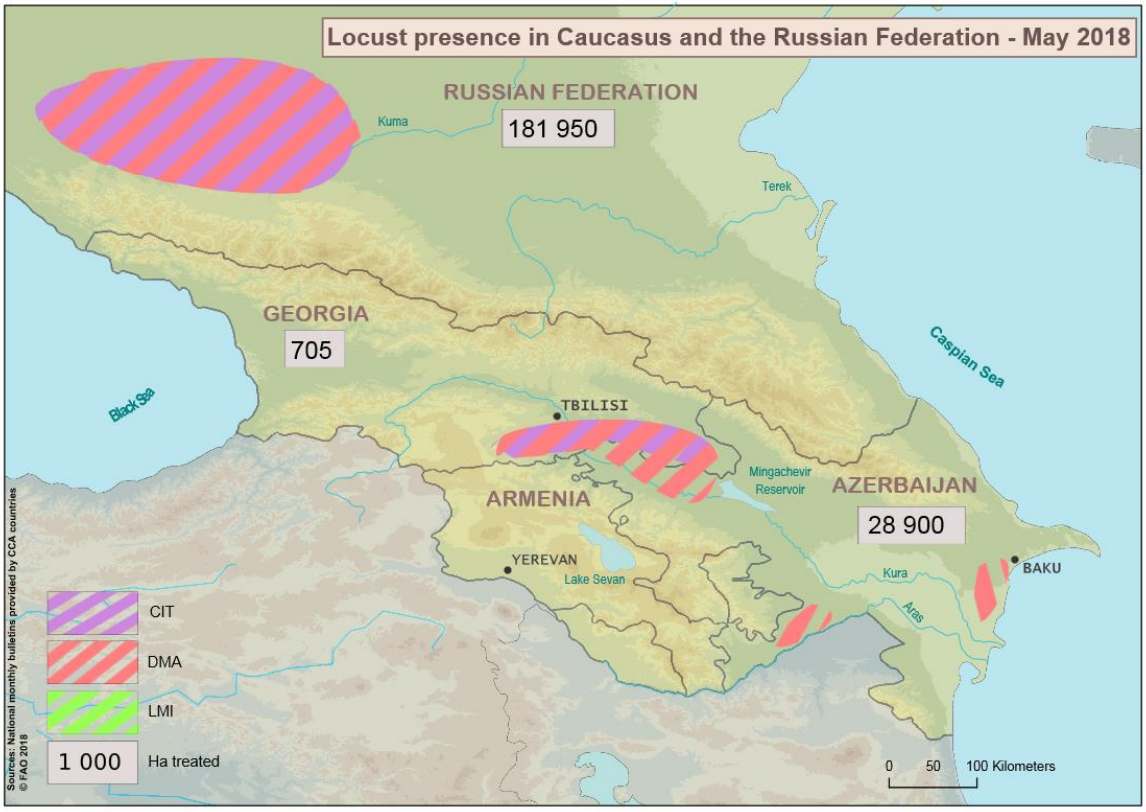
- **Training-of-trainers on locust management**: two briefing sessions on locust spraying and risk reduction, including ASDC, scheduled to the benefit of about 30 Kyrgyz Locust Experts on 6-7 June in Zhayilsky district (Chuy) and 20-21 June in Bakay-Ata district (Talas), Kyrgyzstan; one briefing session on ASDC use scheduled to the benefit of about 15 Afghan Locust Experts on 26-27 June in Kabul, Afghanistan.
- **Human Health and Environmental issues**:
  - Kyrgyzstan: fourth and fifth missions of the Human Health and Environmental Monitoring Team scheduled on 11-15 June, Panfilov and



Jayyl districts (Chuy region) and 25-29 June 2018, Manas district (Talas);

- Tajikistan: second set of missions of the Human Health and Environmental Monitoring Team scheduled in June in Sughd, Khatlon (Vakhsh Valley and Kulob area) and RRS.

- **Procurement of locust survey and control equipment**: ongoing process.
- **Resource mobilization**: ongoing process.


Locust presence in Caucasus and the Russian Federation - May 2018
RUSSIAN FEDERATION
181 950
Kuma
Terek
GEORGIA
705
Caspian Sea
Black Sea
TBILISI
Mingachevir
Reservoir
AZERBAIJAN
28 900
ARMENIA
YEREVAN
Lake Sevan
Kura
BAKU
Aras
CIT
DMA
LMI
1 000
Ha treated
0 50 100 Kilometers
Sources: National monthly bulletins provided by CCA countries
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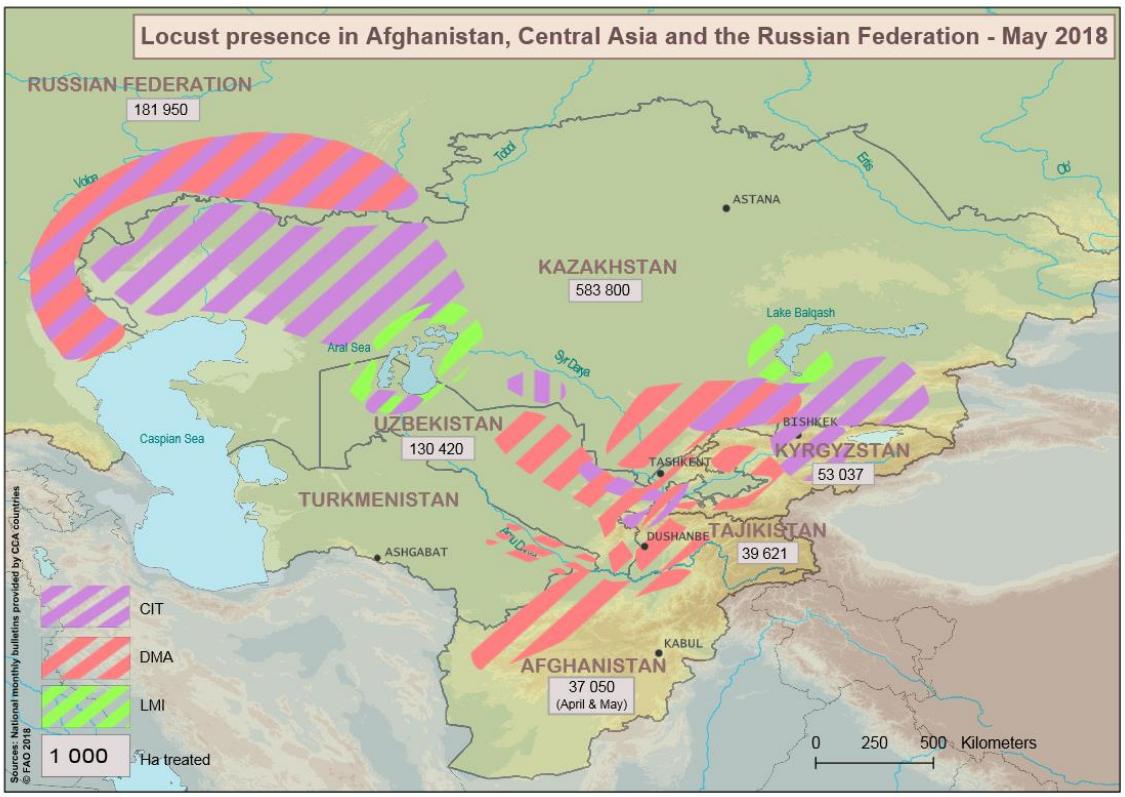
Locust presence in Afghanistan, Central Asia and the Russian Federation - May 2018
RUSSIAN FEDERATION
181 950
Volga
Ural
Ertis
Ob
ASTANA
KAZAKHSTAN
583 800
Lake Balqash
Aral Sea
Syr Darya
UZBEKISTAN
130 420
Caspian Sea
BISHKEK
KYRGYZSTAN
53 037
TASHKENT
TURKMENISTAN
DUSHANBE
TAJIKISTAN
39 621
ASHGABAT
Amu Darya
KABUL
AFGHANISTAN
37 050
(April & May)
CIT
DMA
LMI
1 000
Ha treated
0 250 500 Kilometers
Sources: National monthly bulletins provided by CCA countries
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