Food and Agriculture Organization of the United Nations

No. 490 2 AUGUST 2019

Desert Locust Bulletin

General situation during July 2019
Forecast until mid-September 2019

WESTERN REGION: CALM

SITUATION. Small-scale breeding continued in **Algeria** (115 ha treated) and started in northern **Niger**. Hopper and adult groups formed in southwest **Libya**. Scattered adults appeared in southeast **Mauritania**.
FORECAST. Small-scale breeding will occur in **Mauritania**, **Mali**, **Niger** and **Chad**, causing locust numbers to increase slightly.

CENTRAL REGION: THREAT

SITUATION. Control operations (1 300 ha) declined in **Saudi Arabia**. Hopper bands and swarms formed in **Yemen** and 4 600 ha were treated. A few swarms moved to northeast **Somalia** and **Oman**. Breeding occurred in **Ethiopia** and bands formed in northwest Somalia. Adult groups were treated (1 180 ha) in **Sudan**.
FORECAST. More swarms will form in **Yemen** and another generation of breeding will cause a further increase in locust numbers that could affect southwest **Saudi Arabia**. Hopper bands could form in **Ethiopia** while smaller-scale breeding will occur in **Sudan** and western **Eritrea**.

EASTERN REGION: THREAT

SITUATION. Control operations increased in **India** (26 764 ha) and continued in **Pakistan** (7 666 ha) against swarms and hopper bands but was declining in **Iran** (31 307 ha) against spring-bred populations. There were reports of breeding in southern **Afghanistan**.
FORECAST. Locust infestations will increase from widespread hatching and band formation in Rajasthan, **India** and a second generation of breeding in **Pakistan**.

Swarms in India and Yemen with more expected

In Southwest Asia, substantial ground control operations were carried out against numerous spring-bred swarms that appeared in Rajasthan, India during July and laid eggs, which hatched and caused hopper groups and bands to form. Smaller operations were conducted in adjacent areas of Pakistan. Locust numbers will increase further from widespread hatching in India and a second generation of breeding in Pakistan, giving rise to additional hopper bands and adult swarms. In the Central Region, numerous hopper bands were present in Yemen and new swarms began forming after mid-month. Although control operations were undertaken in some places, the situation is expected to deteriorate further because of unusually heavy rainfall and flooding that will allow another generation of breeding and further increases in locust numbers, which could extend to the Red Sea coast in southwest Saudi Arabia. Several swarms migrated from Yemen, reaching southern Oman and northeast Somalia. A few hopper bands formed on the northwest coast of Somalia and small-scale breeding occurred in northeast Ethiopia. Adult groups were treated in the Nile Valley of northern Sudan. During the forecast period, hopper groups and a few bands could form from breeding in Ethiopia and small-scale breeding will occur in Sudan and Eritrea. In the Western Region, the situation remained calm. Local breeding occurred in southwest Libya and in parts of Algeria and northern Niger while low numbers of adults began appearing in southeast Mauritania. Small-scale breeding will occur in the northern Sahel between Mauritania and Chad, causing locust numbers to increase slightly.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service (DLIS) at FAO HQ in Rome, Italy. DLIS continuously monitors the global Desert Locust situation, weather and ecology to provide early warning based on survey and control results from affected countries, combined with remote sensing, historical data and models. The bulletin is supplemented by Alerts and Updates during periods of increased Desert Locust activity.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
E-mail: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in July 2019

Good rains fell in the summer breeding areas of the northern Sahel from West Africa to northern Ethiopia. Heavy rains and flooding occurred in Yemen that will allow breeding to continue.

WESTERN REGION

The Inter-Tropical Convergence Zone (ITCZ) continued to move northwards over the Sahel in West Africa. It was further north than usual during the first decade in all countries and during the second decade in Niger and Chad but remained further south than usual over Mauritania in the third decade. During the month, it reached as far north as Tidjikja in central Mauritania, Aguelhoc in the central Adrar des Iforas of northern Mali, Tin Zaouatene and In Guezzam in southern Algeria, and Fada in northeast Chad. Consequently, light to moderate rains fell at times during the first two decades in northern Mali and Niger, and in northeast Chad. More intense rains fell during the third decade, especially in southern Mauritania, northern Mali and Niger, and southern Algeria between Bordj Badji Mokhtar and Tamanrasset. As a result, breeding conditions improved in many areas. In Northwest Africa, mainly dry conditions prevailed except near irrigated areas in parts of the Algerian Sahara. Small areas of green vegetation persisted in southwest Libya near Ghat from rains that fell from April to June.

CENTRAL REGION

The Inter-Tropical Convergence Zone (ITCZ) continued to move northwards over the interior of Sudan. During the first and third decades, it was further south than usual but was about normal in the second decade, reaching as far north as Abu Uruq in North Kordofan and Shendi in the Nile Valley. Light to moderate rains fell between El Obeid and Abu Uruq, and heavier showers occurred near Kassala and in the western lowlands of Eritrea that will cause breeding conditions to continue to improve. Breeding conditions were favourable in the Amhara region of northern Ethiopia where heavy rains fell, and in Afar and the eastern region, extending to the Somali plateau near Hargeisa where light to moderate rains occurred. Vegetation was drying out on the coast in northwest Somalia. In Yemen, breeding conditions were favourable in the highlands, interior, Wadi Hadhramaut and on the Aden coastal plains. Unusually heavy and widespread rains, causing sandstorms and flooding, will allow conditions to remain favourable for additional breeding. In Oman, vegetation continued to dry out in most areas.

EASTERN REGION

The annual southwest monsoon arrived in Rajasthan, India during the first week of July, which is about normal, and thereafter reached adjacent areas of Cholistan, Nara and Tharparkar deserts in Pakistan by the 20th. Although heavy rains did not start until the last days of the month, vegetation was already green or becoming green throughout Rajasthan and Gujarat in India as well as in adjacent areas of Tharparkar and southern Cholistan in Pakistan from earlier pre-monsoon rains. Consequently, ecological conditions were favourable for breeding in both countries. Vegetation continued to dry out in the spring breeding areas of southern Iran and southwest Pakistan where only local areas of green vegetation remained near Chabahar, Iran and near Khuzdar and Nushki in northern Baluchistan, Pakistan.

Area Treated

More than 73 000 ha were treated during July.

Algeria	115 ha (July)
Egypt	4 ha (July)
India	26 764 ha (1–26 July)
Iran	31 307 ha (July)
Oman	25 ha (July)
Pakistan	7 666 ha (July)
Saudi Arabia	1 300 ha (July)
Sudan	4 935 ha (June)
	1 180 ha (July)
Yemen	4 605 ha (1–29 July)

Desert Locust Situation and Forecast

WESTERN REGION

Mauritania

• **SITUATION**

During the last decade of July, isolated mature adults were seen in the southeast near Aioun El Atrous (1639N/0936W) and Nema (1636N/0715W).

• **FORECAST**

More scattered adults are likely to appear in the south and southeast where small-scale breeding will occur in areas of recent rainfall, causing locust numbers to increase slightly.

Mali

• **SITUATION**

During July, no surveys were undertaken but locals reported locust infestations in the Adrar des Iforas between Kidal (1827N/0125E) and Aguelhoc (1927N/0052E).

• **FORECAST**

Small-scale breeding will occur in areas of recent rainfall in the Adrar des Iforas, causing locust numbers to increase slightly. Breeding will extend to adjacent areas of the Tilemsi Valley and Tamesna with the onset of the summer rains.

Niger

• **SITUATION**

During July, isolated mature solitarious adults were present in the southeast Air Mountains east of Timia (1809N/0846E) and on the Tamesna Plains between In Abangharit (1754N/0559E) and Tazerzait Plateau (1832N/0449E). Local breeding occurred east of Timia where fourth instar solitarious hoppers were seen at the end of the month.

• **FORECAST**

Small-scale breeding will cause locust numbers to increase slightly on the Tamesna Plains and in the southeast Air Mountains as well as between Tahoua and Tanout where breeding is likely to be already in progress from earlier rains.

Chad

• **SITUATION**

No surveys were carried out and no locusts were reported in July.

• **FORECAST**

Scattered adults are likely to appear in areas of recent rainfall in the centre and northeast and breed on a small scale.

Burkina Faso

• **SITUATION**

No locust activity was reported during July.

• **FORECAST**

No significant developments are likely.

Senegal

• **SITUATION**

No locust activity was reported during July.

• **FORECAST**

No significant developments are likely.

Benin, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Nigeria, Sierra Leone and Togo

• **FORECAST**

No significant developments are likely.

Algeria

• **SITUATION**

During July, small-scale breeding continued near irrigated areas in the northern Sahara south of El Bayadh (3341N/0102E) and in the central Sahara northeast of Timimoun (2916N/0014E) where low numbers of solitarious hoppers persisted. Scattered immature and mature solitarious adults were also present between Timimoun and In Salah (2712N/0229E) while isolated mature solitarious adults were seen in the southern Sahara west of Tamanrasset (2250N/0528E). Ground teams treated 115 ha.

• **FORECAST**

Low numbers of locusts may persist near agricultural areas in the central Sahara where small-scale breeding could continue. Breeding will occur in the south in those areas that receive rainfall. No significant developments are likely.

Morocco

• **SITUATION**

No locust activity was reported during July.

• **FORECAST**

No significant developments are likely.

Libya

• **SITUATION**

Groups of gregarious fifth instar hoppers and immature adults, resulting from earlier breeding, were seen at several places during a survey in the Ghat (2459N/1011E) area of the southwest on 16–20 July.

• **FORECAST**

Low numbers of adults are likely to persist in those areas that remain green near Ghat but will decline as vegetation dries out and adults move south to summer breeding areas.

Tunisia

• **SITUATION**

No locust activity was reported during July.

• **FORECAST**

No significant developments are likely.

CENTRAL REGION

Sudan

• **SITUATION**

During the first week of July, scattered mature solitarious adults were seen on the Red Sea coast between Suakin (1906N/3719E) and the Eritrea border, in the Nile Valley between Khartoum (1533N/3235E) and Atbara (1742N/3400E), and in North Kordofan between El Obeid (1311N/3010E) and Umm Saiyala (1426N/3112E), and in the Baiyuda Desert. Ground teams treated 1 180 ha of maturing adult groups in the northern Nile Valley near Merowe (1830N/3149E) and mature groups near Abu Hamed (1932N/3320E).

• **FORECAST**

Small-scale breeding is expected to be underway in areas of recent rainfall in North Darfur, North Kordofan, White Nile and Khartoum states. This will cause locust numbers to increase in all areas. There is a low to moderate risk of a few adult groups or perhaps a small swarm arriving from adjacent areas of northern Ethiopia.

Eritrea

• **SITUATION**

No surveys were carried out and no locusts were reported in July.

• **FORECAST**

Low numbers of adults, perhaps supplemented by a few groups arriving from northern Ethiopia, are expected to appear in the western lowlands and breed in areas of recent rains. Consequently, locust numbers will increase during the forecast period.

Ethiopia

• **SITUATION**

During July, small-scale breeding occurred on the western edge of the Awash Valley north of Bati (1111N/4001E) in the Afar and Amhara regions where first and second instar solitarious hoppers mixed with mature solitarious adults were seen in the last week. Scattered solitarious adults were also present in the eastern region between Dire Dawa (0935N/4150E) and Ayasha (1045N/4234E).

• **FORECAST**

Breeding will occur in areas of recent rainfall in Amhara, Afar and eastern regions, with additional hatching that could give rise to hopper groups and bands.

Djibouti

• **SITUATION**

No surveys were carried out and no locusts were reported in July.

• **FORECAST**

No significant developments are likely.

Somalia

• **SITUATION**

On 12–13 July, several mature swarms were seen flying along the northeastern plateau in the Sanaag and Bari regions from south of the northern coastal mountains to Iskushuban (1017N/5014E). In the northwest, second to fourth instar hoppers bands were present during the third week on the coastal plains south of Zeylac (1121N/4328E) near the Djibouti border as a result of egg-laying in mid-June by swarms that arrived from Yemen. Scattered mature solitarious adults were seen further east along the coast to Berbera (1028N/4502E) and low numbers of solitarious hoppers were present at two places on the escarpment and plateau southeast of Berbera.

• **FORECAST**

Fledging will occur on the northwest coast during the first three weeks of August; thereafter, small highly mobile immature groups and perhaps a few small swarms are likely to form and move up the escarpment to the plateau in the northwest and adjacent areas of eastern Ethiopia. In the northeast, breeding by earlier swarms could give rise to hopper groups and bands.

Egypt

• **SITUATION**

During July, small-scale breeding occurred near farms in the Sh. Oweinat (2219N/2845E) area just north of the Sudanese border where solitarious hoppers and a few small hopper groups were present. Ground teams treated 4 ha. No locusts were seen during surveys on the Red Sea coast west of Abu Ramad (2224N/3624E), in the Nile Valley north of Aswan (2405N/3256E), and in the Western Desert near Darb Al-Arbain (2357N/3018E), Farafra (2710N/2818E) and Bahariya (2821N/2851E).

• **FORECAST**

Low numbers of locusts may persist on the edges of some farms in the Western Desert. No significant developments are likely.

Saudi Arabia

• **SITUATION**

During July, immature solitarious adults were present at mid-month near Wadi Dawasir (2028N/4747E), and groups of immature adults were seen in the Asir Mountains near Al Baha (2001N/4129E) and Abha (1813N/4230E) during the last week. Ground teams treated 1 300 ha. No locusts were seen during surveys in the spring breeding areas of the central interior between Riyadh (2439N/4642E) and Hail (2731N/4141E) and in the east near Qaryat Al Olaya (2733N/4742E).

• **FORECAST**

Locusts may persist near Wadi Dawasir and in parts of the Asir Mountains. Locust groups are likely to appear on the southern coast of the Red Sea near Jizan from adjacent areas of Yemen and breed in areas of recent rainfall or runoff.

Yemen

• **SITUATION**

During July, numerous hopper bands continued to form throughout the highlands, along the western edge of Ramlat Sabatyn from Al Hazm (1610N/4446E) to Bayhan (1452N/4545E), on the southern coast from Am Rija (1302N/4434E) to Zinjibar (1306N/4523E), and in the foothills of the Red Sea coast east Al Zuhrah (1541N/4300E). By mid-month, many of the hoppers had fledged and immature adults were forming groups and swarms that were seen flying in many areas, including Sana'a (1521N/4412E). On the 27th, a mature swarm was seen laying south of Marib (1527N/4519E). In the east, mature adult groups were present in Wadi Hadhramaut and on the plateau towards Thamud (1717N/4955E). Ground teams treated 4 605 ha on 1–29 July.

• **FORECAST**

Swarm formation will continue in the highlands, the Ramlat Sabatyn interior and on the southern coast. Most of the swarms are expected to persist, mature and start to lay in areas of recent rainfall during the second half of August,

including the Red Sea coast. This could give rise to another generation of hatching by the end of the forecast period that would cause a substantial increase in locust numbers. Limited breeding may also occur in Wadi Hadhramaut where hopper and adult groups may form.

Oman

• **SITUATION**

During the first week of July, solitarious mature adults including at least one group were seen in the southern province of Dhofar northwest of Thumrait (1736N/5401E), and a mature swarm was seen on the coast north of Salalah (1700N/5405E) on the 5th. These populations probably originated from earlier breeding in the Empty Quarter and in eastern Yemen. In the northern interior, scattered immature and mature solitarious adults were present near Sinaw (2230N/5802E) and on the Musandam Peninsula where small scale breeding occurred and solitarious hopperswere present at one place. Ground teams treated 25 ha of mature groups in the mountains near Sur (2234N/5930E) on the 17–20th, most likely a result of earlier local breeding.

• **FORECAST**

Scattered adults may persist in parts of the north, but no significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UAE and Uganda

• **FORECAST**

No significant developments are likely.

EASTERN REGION

Iran

• **SITUATION**

During July, groups of immature and mature adults prevailed in the southern provinces of Ilam near the Iraqi border, Bushehr and adjacent areas of Khuzestan and Fars, Hormozgan, southern Kerman and Sistan-Baluchistan. Small-scale breeding occurred near the Afghan border to the west of Zabol (3102N/6130E) where mid-instar solitarious hoppers were present. Control operations ended on 24 July, treating 31 307 ha during the month of which 10 720 ha were by air.

• **FORECAST**

A few residual groups of adults will persist in parts of the south early in the forecast; thereafter, the situation will become calm and no significant developments are likely.

Pakistan

• **SITUATION**

In the spring breeding areas of Baluchistan, ground teams treated hopper and adult groups in the north near Nushki (2933N/6601E) and immature adults further south near Lasbela (2614N/6619E) during the first fortnight of July. Scattered mature solitarious adults were present along the coast east of Ormara (2512N/6438E)and in the interior near Khuzdar (2749N/6639E). In the summer breeding areas, groups of hoppers and immature and mature adults were present east of the Indus Valley to the south of Rohri (2739N/6857E). Groups of adults laid eggs in Cholistan near Islamgarh (2751N/7048E) and Rahimyar Khan (2822N/7020E), and in Tharparkar Desert near Chachro (2506N/7015E) and Virawah (2431N/7046E) where immature soltiarious adults were also present near the Indian border. In Cholistan, a mature swarm was seen flying south of Bahawalpur (2924N/7147E) on the 15th, and hatching commenced during the last week and hoppers were forming groups. Control operations treated 7 666 ha of which 400 ha were by air.

• **FORECAST**

Breeding will continue in Cholistan and Tharparkar deserts with hatching and the formation of hopper groups and bands. This will be supplemented by a second generation of breeding in Nara Desert. New immature adult groups and perhaps a few small swarms are likely to form in September.

India

• **SITUATION**

During July, numerous mature adult groups and swarms appeared from spring breeding areas and laid eggs over a widespread portion of Rajasthan from Barmer (2543N/7125E) to Churu (2818N/7458E). Hatching commenced about mid-month and early instar hopper groups formed in Jaisalmer district and, to a lesser extent, in southwest Jalor and in northern Gujarat while hopper bands formed along the border of Pakistan in Barmer district. Small-scale breeding occurred in parts of Bikaner and Churu districts. Ground teams treated 26 764 ha on 1–26 July.

• **FORECAST**

Fledging of current hopper groups and bands will commence by the beginning of August and groups and perhaps small immature swarms are likely to form. In addition, breeding will continue especially in Bikaner and Jaisalmer districts where substantial hatching is expected during the first half of August, giving rise to hopper groups and bands that will start to fledge in the first half of September and form immature adult groups and possibly small swarms.

Afghanistan

• **SITUATION**

There were reports of locust infestations in the southern provinces of Helmand and Nimroz where mature *transiens* and gregarious adults were seen copulating in July.

• **FORECAST**

Hatching and the formation of hopper groups and perhaps small bands are likely to occur during August in parts of Helmand and Nimroz provinces.

Announcements

Locust warning levels

A colour-coded scheme indicates the seriousness of the current Desert Locust situation: **green** for *calm*, **yellow** for *caution*, **orange** for *threat* and **red** for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletins. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Locust reporting

Calm (green). Countries should report at least once/month and send RAMSES data with a brief interpretation.
Caution (yellow), threat (orange) and danger (red). During locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the latest survey.
Bulletins. Affected countries are encouraged to prepare decadal and monthly bulletins summarizing the situation.
Reporting. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org and faodlislocust@gmail.com). Reports received by the first two days of the new month will be included in the FAO Desert Locust Bulletin; otherwise, they will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Calendar

The following activities are scheduled:

- **DLCC.** 41st Session, Addis Ababa, Ethiopia (10–13 December)

Glossary of terms

The following special terms are used in the Desert Locust Bulletin when reporting locusts:

Non-gregarious adults and hoppers

Isolated (few)
- very few present and no mutual reaction occurring
- 0–1 adult/400 m foot transect (or less than 25/ha)

Scattered (some, low numbers)
- enough present for mutual reaction to be possible but no ground or basking groups seen
- 1–20 adults/400 m foot transect (or 25–500/ha)

Group
- forming ground or basking groups
- 20+ adults/400 m foot transect (or 500+/ha)

Adult swarm and hopper band sizes

Very small
- swarm: less than 1 km^2
- band: 1–25 m^2

Small
- swarm: 1–10 km^2
- band: 25–2,500 m^2

Medium
- swarm: 10–100 km^2
- band: 2,500 m^2 – 10 ha

Large
- swarm: 100–500 km^2
- band: 10–50 ha

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas
- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas
- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas
- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding
- The process of reproduction from copulation to fledging

Recession
- Period without widespread and heavy infestations by swarms

Remission
- Period of deep recession marked by the complete absence of gregarious populations

Outbreak
- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge
- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. No threat to crops; maintain regular surveys and monitoring

Yellow

- *Caution*. Potential threat to crops; increased vigilance is required; control operations may be needed

Orange

- *Threat*. Threat to crops; survey and control operations must be undertaken

Red

- *Danger*. Significant threat to crops; intensive survey and control operations must be undertaken

Regions

Western

- Locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal, Tunisia; during plagues only: Benin, Burkina Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierre Leone and Togo

Central

- Locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UAE and Uganda

Eastern

- Locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

Useful tools and resources

FAO Locust Watch. Information, maps, activities, publications, archives, FAQs, links
http://www.fao.org/ag/locusts

FAO Desert Locust regional commissions. Western Region (CLCPRO), Central Region (CRC), South-West Asia (SWAC)
http://www.fao.org/ag/locusts

IRI RFE. Rainfall estimates every day, decade and month
http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html

IRI Greenness maps. Dynamic maps of green vegetation evolution every decade
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html

NASA WORLDVIEW. Satellite imagery in real time
https://worldview.earthdata.nasa.gov

Windy. Real time rainfall, winds and temperatures for locust migration
http://www.windy.com

eLocust3 training videos. A set of 15 introductory training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEdv1jAPaF02TCfpcnYoFQT

RAMSESv4 training videos. A set of basic training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So

RAMSESv4 and eLocust3. Installer, updates, videos, inventory and support
https://sites.google.com/site/rv4elocust3updates/home

FAOLocust Twitter. The very latest updates posted as tweets
http://www.twitter.com/faolocust

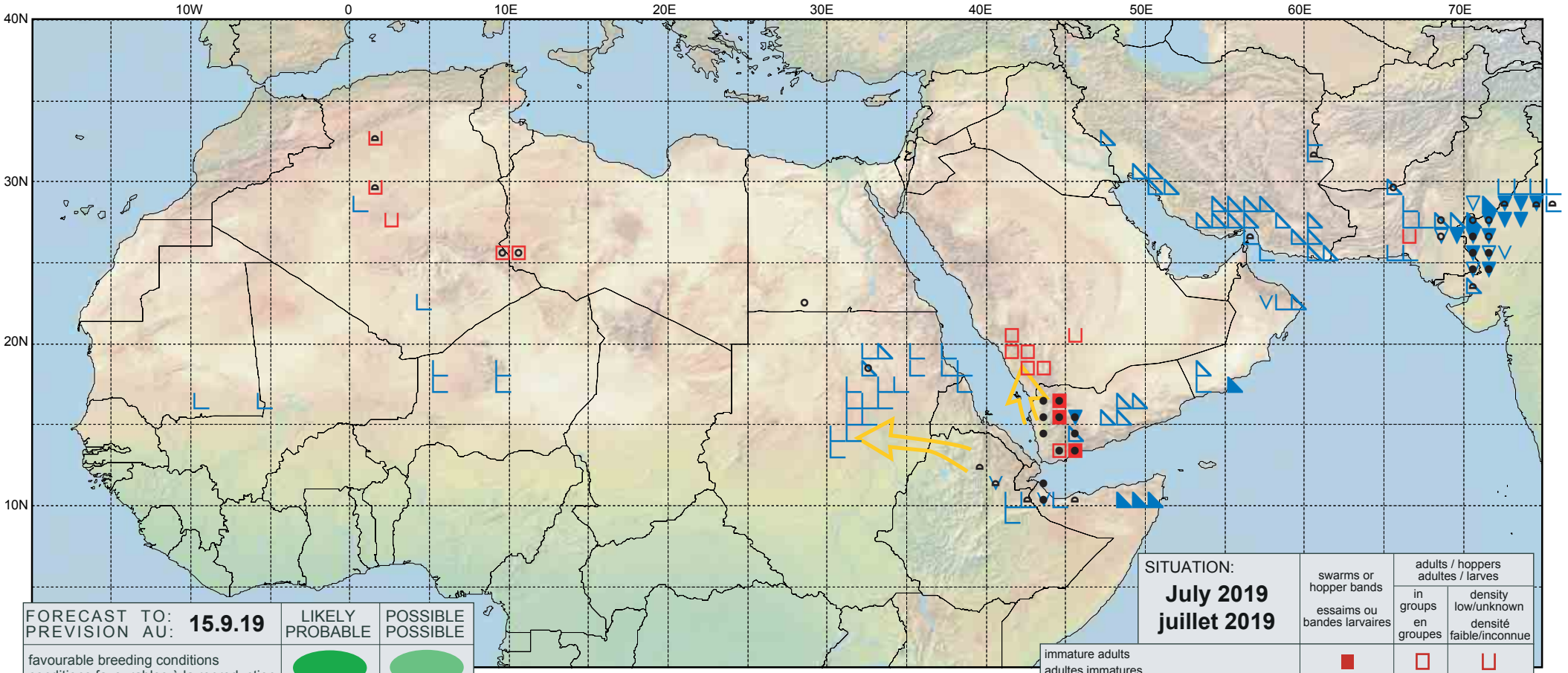
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

FAOLocust Slideshare. Locust presentations and photos
http://www.slideshare.net/faolocust

eLERT. Online database of resources and technical specifications for locust emergencies
http://sites.google.com/site/elertsite

Desert Locust Summary
Criquet pèlerin - Situation résumée

490



FORECAST TO: / PREVISION AU: **15.9.19**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION:
July 2019
juillet 2019

	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	L
adults, maturity unknown adultes, maturité inconnue	▲	△	Λ
egg laying or eggs pontes ou œufs	▼	▽	V
hoppers larves	●	○	∩
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⊔