

1

00:00:01,128 --> 00:00:08,125

This series presents information based in part on theory and conjecture.

2

00:00:08,125 --> 00:00:19,120

The producer's purpose is to suggest some possible explanations, but not necessarily the only ones to the mysteries we will examine.

3

00:00:19,120 --> 00:00:29,116

Millions of years before the dawn of man, ants had learned to live in large, complex societies.

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00:00:30,116 --> 00:00:35,114

They had also mastered the art of war.

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00:00:35,114 --> 00:00:45,110

Since their sources of food were much larger than themselves, they killed their prey by strategic attack.

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00:00:45,110 --> 00:00:53,106

Today, a highly aggressive, often deadly breed of ant threatens to spread like a plague throughout much of the United States.

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00:01:00,103 --> 00:01:10,099

In the tropical jungles of Central and South America, everyday reality can have the appearance of pure illusion.

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00:01:10,099 --> 00:01:17,096

Animated leaves seem to march down a hanging vine.

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00:01:17,096 --> 00:01:22,094

In truth, each leaf's movement is the work of a tiny but powerful ant.

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00:01:22,094 --> 00:01:24,093

They are known as the leaf cutters.

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00:01:24,093 --> 00:01:27,092

Leaf cutters are the farmers of the jungle.

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00:01:27,092 --> 00:01:33,089

One colony transports over a ton of leaves a year to its underground city.

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00:01:33,089 --> 00:01:36,088

The leaves themselves will not be eaten.

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00:01:36,088 --> 00:01:43,085

A fungus which will grow on the stored leaves provides the entire colony with its single source of food.

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00:01:48,083 --> 00:01:51,082

Leaf cutter ants have tremendous strength.

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00:01:51,082 --> 00:02:00,078

Held by the ant's powerful mandibles, a single leaf weighing as much as the ant itself will often be carried more than a hundred yards.

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00:02:00,078 --> 00:02:06,076

To equal this feat, a man would have to carry a hundred fifty pounds in his teeth.

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00:02:06,076 --> 00:02:21,069

Or nearly every jungle animal's survival hangs in delicate balance.

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00:02:21,069 --> 00:02:28,066

Both predator and prey are highly affected by the slightest change in the jungle's fragile ecology.

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00:02:28,066 --> 00:02:30,066

Food cannot be taken for granted.

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00:02:30,066 --> 00:02:33,064

Its abundance is never assured.

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00:02:37,063 --> 00:02:44,060

If the taper cannot find its daily requirement of buried roots and bulbs, it faces starvation.

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00:02:44,060 --> 00:02:49,058

The tiny ant, however, has a distinct advantage over other jungle species.

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00:02:49,058 --> 00:02:56,055

It is older, more resilient to change, and much better adapted to its unpredictable environment.

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00:02:56,055 --> 00:03:03,052

The hollow branches of a young *Sacropia* tree is the favorite home of Aztec ants.

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00:03:04,051 --> 00:03:08,050

The Aztecs have powerful mandibles and a vicious bite.

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00:03:08,050 --> 00:03:14,047

If their tree is disturbed in any way, the entire colony will swarm out to attack the intruder.

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00:03:14,047 --> 00:03:21,044

A foreign vine placed against the tree quickly rallies the colony in defense of its home.

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00:03:21,044 --> 00:03:26,042

A frenzied attack will not end until the vine has been completely removed.

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00:03:27,042 --> 00:03:32,040

The tamandua, or ant-eater, will rarely venture a visit to a Sacropia tree.

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00:03:32,040 --> 00:03:37,038

It is content to search for termite nests high in the branches of other trees.

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00:03:41,036 --> 00:03:47,033

Among the most legendary and feared of all jungle predators is a group of tiny, fast-moving ants.

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00:03:47,033 --> 00:03:52,031

They travel like soldiers in well-organized columns, continually searching for food.

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00:03:53,031 --> 00:03:57,029

The highly developed cooperation among hundreds of thousands of ants

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00:03:57,029 --> 00:04:01,028

transforms their mobile colony into a single ferocious creature.

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00:04:01,028 --> 00:04:04,026

They are called army ants.

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00:04:04,026 --> 00:04:08,025

When army ants move through the jungle, they establish temporary bivwaks

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00:04:08,025 --> 00:04:12,023

by forming a solid mass with their own bodies.

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00:04:12,023 --> 00:04:18,020

Using their hooked feet, thousands of workers attach themselves together in successive rows.

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00:04:18,020 --> 00:04:24,018

The rows hang down to form an intricate living wall which protects the queen inside.

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00:04:28,016 --> 00:04:33,014

Every morning, hundreds of raiding parties set out in search of prey.

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00:04:34,014 --> 00:04:40,011

A chance encounter with a rival species of army ants sets the stage for the day's first battle.

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00:04:42,010 --> 00:04:46,009

Both ants are armed with sharp mandibles and a deadly sting.

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00:04:46,009 --> 00:04:49,007

They will fight to the death.

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00:04:56,005 --> 00:05:00,003

While raiding columns frantically hunt for other sources of food,

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00:05:00,003 --> 00:05:04,001

a powerful bite finally cripples the opponent.

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00:05:08,999 --> 00:05:12,997

A larger prey suffers a coordinated mass attack.

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00:05:13,997 --> 00:05:16,996

Once it has been paralyzed by dozens of stings,

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00:05:16,996 --> 00:05:22,993

the army ants carefully dissect their victim and carry it piece by piece back to the bivwak.

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00:05:25,992 --> 00:05:32,989

In a single day, thousands of insects will become helpless victims of the ravenous army ant.

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00:05:33,989 --> 00:05:40,986

Wherever raiding ants move, other animals follow along, hoping to feed on their fleeing prey.

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00:05:43,984 --> 00:05:47,983

There are other kinds of deadly ants which live in the jungle completely alone.

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00:05:47,983 --> 00:05:51,981

They are solitary hunters and highly efficient killers.

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00:05:53,980 --> 00:05:58,978

For the predacious ant, a much larger katydid makes an easy victim.

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00:05:59,978 --> 00:06:05,975

Nearly an inch long, the predacious ant will attack insects many times its size.

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00:06:06,975 --> 00:06:12,972

Possessed of incredible strength, it can easily lift the katydid and carry it off.

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00:06:13,972 --> 00:06:19,969

Its venom is deadly. A single sting can paralyze, even kill a grown man.

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00:06:21,969 --> 00:06:26,966

Most of us regard ants as insignificant pests, a nuisance in the kitchen or at a picnic.

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00:06:27,966 --> 00:06:31,964

But for many people in the United States, that attitude has undergone a forcible change.

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00:06:32,964 --> 00:06:38,961

The problem has been caused by a tiny but fierce red ant, the fire ant.

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00:06:46,958 --> 00:06:51,956

In fields and pastures throughout the South, large earth mounds loom above the ground,

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00:06:51,956 --> 00:06:58,953

signaling that the invader is there. The mounds are built and inhabited by fire ants.

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00:06:59,953 --> 00:07:06,950

The fire ant mound forms only the tip of a vast colony which can extend 20 feet underground.

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00:07:10,948 --> 00:07:16,946

Highly aggressive, the fire ant's armament includes razor sharp mandibles for biting

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00:07:16,946 --> 00:07:20,944

and a painful burning sting that gives the ant its name.

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00:07:21,943 --> 00:07:27,941

Within each fire ant colony, specialized workers do nothing but build and repair.

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00:07:28,940 --> 00:07:34,938

The work is constant. It begins when the colony is established and the mound itself must be built.

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00:07:36,937 --> 00:07:40,935

As the colony grows, new tunnels and chambers must be added continually.

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00:07:47,933 --> 00:07:54,930

In about three years, the mound may reach over a yard high and contain more than 250,000 ants.

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00:07:59,928 --> 00:08:06,925

If split down the middle, the mound is revealed as an intricate network of interconnecting tunnels and chambers.

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00:08:08,924 --> 00:08:12,922

Very deep in some of the chambers lie the developing eggs of new ants.

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00:08:13,922 --> 00:08:17,920

The eggs are frequently moved from place to place by specialized workers.

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00:08:18,920 --> 00:08:21,918

When the sun warms the mound, eggs are carried toward the top.

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00:08:22,918 --> 00:08:29,915

At night or during cold weather, the developing brood is hauled deep below ground level where the temperature is warmer.

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00:08:30,915 --> 00:08:34,913

Other workers specialize in storing food or in keeping the mound clean.

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00:08:35,912 --> 00:08:38,911

Still others stand on constant guard, ready to sound an alert.

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00:08:40,910 --> 00:08:46,908

The slightest disturbance to the mound instantly rallies thousands of biting, stinging ants in defense of the colony.

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00:08:47,907 --> 00:08:53,905

The aggressive fire ants wage regular warfare on all other kinds of ants they encounter.

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00:08:54,904 --> 00:09:00,902

Unable to see or hear, they communicate their strategy by chemical odors called pheromones.

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00:09:01,902 --> 00:09:03,901

They rarely lose a battle.

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00:09:08,899 --> 00:09:13,897

Wherever fire ants have spread, they have quickly eradicated native ants,

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00:09:13,897 --> 00:09:16,895

establishing themselves as the singular species.

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00:09:20,894 --> 00:09:22,893

Fire ants are voracious predators.

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00:09:23,892 --> 00:09:26,891

Their colonies require a huge and regular supply of food.

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00:09:30,889 --> 00:09:39,886

Given to attacking in overwhelming numbers, fire ants will actually delay and attack until sufficient ants have gathered to ensure an easy conquest.

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00:09:40,885 --> 00:09:44,884

Fire ants devour insects as the mainstay of their diet.

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00:09:45,883 --> 00:09:48,882

They also eat earthworms, grubs and spiders.

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00:09:56,879 --> 00:10:00,877

Fire ants attack beneficial insects as well as harmful ones.

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00:10:01,876 --> 00:10:03,876

They are indiscriminate killers.

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00:10:04,875 --> 00:10:10,873

In many parts of the South, vast areas are scarred with more than 200 fire ant mounds per acre.

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00:10:12,872 --> 00:10:16,870

In the United States, fire ants have no natural enemies.

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00:10:17,870 --> 00:10:20,869

At present, there is no way to stop them.

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00:10:26,866 --> 00:10:30,864

Today, fire ants infest more than 150,000 ants.

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00:10:30,864 --> 00:10:37,861

Today, fire ants infest more than 150 million acres in nine southern states, from North Carolina to Texas.

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00:10:38,861 --> 00:10:42,859

Highly adaptable, their mounds can be found nearly everywhere.

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00:10:43,859 --> 00:10:55,854

In parks and playgrounds, in fields and vacant city lots, along sidewalks and roadsides, around houses, on lawns, near schools and hospitals, even in the middle of cities.

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00:10:56,853 --> 00:11:03,851

The main shopping street of Gulfport, Mississippi is completely undermined with thousands of fire ant tunnels.

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00:11:04,850 --> 00:11:07,849

The ants have no problem finding food and thriving.

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00:11:10,848 --> 00:11:13,846

The red fire ant is a relative newcomer to this country.

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00:11:14,846 --> 00:11:19,844

They arrived in Mobile, Alabama sometime between 1933 and 1945.

101

00:11:20,843 --> 00:11:24,842

A few ants were probably hidden in the cargo of a freighter from their native Brazil.

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00:11:25,841 --> 00:11:27,840

They jumped ship and quickly multiplied.

103

00:11:28,840 --> 00:11:31,839

By the early 1950s, farmers started to complain.

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00:11:32,838 --> 00:11:35,837

The fire ant had begun to interfere with their livelihood.

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00:11:36,837 --> 00:11:40,835

The ants' hard earth mounds clogged equipment and bent cutting blades.

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00:11:41,835 --> 00:11:46,833

No longer just a bothersome pest, the fire ant was becoming a major nuisance.

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00:11:47,832 --> 00:11:50,831

Complaints about the fire ant mounted quickly.

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00:11:51,830 --> 00:11:55,829

Fire ants invaded bails of hay, rendering them useless as feed for animals.

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00:11:56,828 --> 00:12:05,825

Field workers, whose jobs required them to spend long hours near fire ant mounds, were frequently attacked and painfully stung.

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00:12:08,823 --> 00:12:13,821

Young farm animals were sometimes killed when they strayed into ant-infested pastures.

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00:12:14,821 --> 00:12:17,820

A chemical war against the fire ant was launched.

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00:12:18,819 --> 00:12:21,818

It began on a small scale and then escalated.

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00:12:22,817 --> 00:12:27,815

Cyanide, Chlordane, Dieldrin, Heptachlor, Keepholm,

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00:12:28,815 --> 00:12:32,813

virtually every insecticide known to man was used against the fire ant.

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00:12:35,812 --> 00:12:39,810

Yet the number of ants only increased. They continued to spread.

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00:12:40,810 --> 00:12:47,807

In 1962, a newly discovered insecticide called Myrex offered new hope for the war against the ants.

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00:12:58,802 --> 00:13:03,800

Large areas of land were covered with small pellets of bait containing the insecticide.

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00:13:09,798 --> 00:13:13,796

Where other chemicals had failed, this one seemed to control the ants.

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00:13:16,795 --> 00:13:21,793

A fleet of vintage B-17 bombers was converted to drop insecticide.

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00:13:22,792 --> 00:13:25,791

Their single mission? To destroy the fire ant.

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00:13:34,787 --> 00:13:38,786

The campaign has been called the Vietnam of Entomology.

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00:13:39,785 --> 00:13:44,783

It lasted for years, covered vast areas of land and cost millions of dollars.

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00:13:46,782 --> 00:13:50,781

When it was over, there were more fire ants than before.

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00:13:51,780 --> 00:13:54,779

The fire ants have continued to multiply and spread,

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00:13:55,779 --> 00:13:58,777

and scientists are searching frantically for a new weapon against them.

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00:13:59,777 --> 00:14:03,775

At the U.S. Department of Agriculture's Fire Ant Control Lab,

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00:14:04,775 --> 00:14:07,773

nearly 4,000 new insecticides have been carefully tested.

128

00:14:10,772 --> 00:14:14,771

So far, none has proved both safe and effective.

129

00:14:17,769 --> 00:14:20,768

A winged fire ant queen, ready for mating.

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00:14:21,768 --> 00:14:25,766

The major problem in controlling the spread of fire ants lies in the lack of a single ant.

131

00:14:25,766 --> 00:14:29,764

The major problem in controlling the spread of fire ants lies in their method of reproduction.

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00:14:30,764 --> 00:14:33,763

Mating takes place not on the ground, but high in the air.

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00:14:36,761 --> 00:14:40,760

Unfertilized winged queens are produced in large numbers by every colony.

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00:14:41,759 --> 00:14:46,757

At mating time, usually in the spring, they leave the colony for a nuptial flight.

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00:14:47,757 --> 00:14:52,755

A hovering cloud of winged male ants waits in the sky high above them.

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00:14:53,754 --> 00:14:56,753

The queens fly up to the males to be inseminated.

137

00:15:02,750 --> 00:15:07,748

After their aerial rendezvous, the fertile queens fly back to the ground.

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00:15:08,748 --> 00:15:12,746

Each is programmed by nature to establish a new colony wherever she lands.

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00:15:15,745 --> 00:15:20,743

The queen's new colony may be located hundreds of yards or even miles from her original mound.

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00:15:23,742 --> 00:15:28,740

Within a month, a small underground colony has emerged around the queen.

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00:15:31,738 --> 00:15:37,736

The first generation of workers tends to developing larvae with care, keeping them warm and alive.

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00:15:38,735 --> 00:15:40,735

The queen herself receives constant attention.

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00:15:41,734 --> 00:15:45,732

A group of specialized workers does nothing but groom and feed her.

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00:15:46,732 --> 00:15:52,730

The only way the workers can identify her is by the chemical odor or pheromone which she exudes.

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00:15:53,729 --> 00:15:58,727

For the rest of her life, the queen will do nothing but lay eggs, millions of them.

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00:15:59,727 --> 00:16:03,725

Each developing egg is carefully guarded and cared for.

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00:16:04,725 --> 00:16:07,723

Quickly, the emerging colony will multiply in size.

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00:16:08,723 --> 00:16:15,720

Scientists have isolated the queen pheromone and are attempting to use it in their struggle to control the fire ant.

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00:16:16,720 --> 00:16:20,718

When the pheromone is spread on a stick, workers mistake it for the queen.

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00:16:21,717 --> 00:16:24,716

They react automatically and carry it into the colony.

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00:16:27,715 --> 00:16:34,712

The pheromone odor may someday serve as a way to deliver new insecticides into the core of a fire ant mound.

152

00:16:38,710 --> 00:16:42,709

At present, however, it is only an experiment which holds some promise for the future.

153

00:16:45,707 --> 00:16:49,706

Parasitic mites sometimes infest the bodies of fire ants.

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00:16:50,705 --> 00:16:55,703

This fact has led scientists to search for other organisms that could control the ant population.

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00:16:56,703 --> 00:16:58,702

So far, none has been found.

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00:16:59,702 --> 00:17:05,699

Viewed through an electron microscope, the tiny fire ant takes on grotesque form.

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00:17:07,698 --> 00:17:14,695

Nearly half of its head area is taken up by two sharp mandibles, each with three points to tear and bite.

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00:17:17,694 --> 00:17:23,691

The fire ant's real wallop, however, comes from its venomous stinger, not its bite.

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00:17:28,689 --> 00:17:37,686

Using a tiny syringe, Agriculture Department scientist Dr. Mike Glancy carefully milks venom from a dissected fire ant.

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00:17:39,685 --> 00:17:47,681

The venom is unique in the animal world. It is a burning alkaloid chemical similar to the substances found in poisonous plants.

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00:17:48,681 --> 00:17:53,679

The fire ant's venom makes an accidental sting a very painful experience.

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00:17:54,678 --> 00:18:00,676

The ant first bites the skin with its mandibles, then it injects poison with the stinger.

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00:18:01,676 --> 00:18:05,674

The result is a painful pustule which lasts several days.

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00:18:07,673 --> 00:18:13,671

Dogs that play in fire ant areas are highly vulnerable. This puppy was savagely attacked.

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00:18:15,670 --> 00:18:21,667

Farm animals grazing in infested pastures frequently receive numerous painful stings.

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00:18:24,666 --> 00:18:28,664

This woman fell on a fire ant mound and was badly stung.

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00:18:29,664 --> 00:18:38,660

In 1974, foraging fire ants entered the window of a convalescent home and stung this woman hundreds of times. She barely survived.

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00:18:43,658 --> 00:18:46,657

As the fire ant has spread, it has taken a human toll.

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00:18:47,656 --> 00:18:53,654

People have died from complications such as gangrene which developed from fire ant stings.

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00:18:54,653 --> 00:19:00,651

The elderly, the allergic and people with circulatory problems are especially vulnerable to the venom.

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00:19:03,650 --> 00:19:10,647

The list of victims will undoubtedly grow. The fire ant is multiplying and spreading at an incredible rate.

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00:19:11,646 --> 00:19:16,644

Today, fire ants are sweeping westward and also to the north.

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00:19:17,644 --> 00:19:20,642

They are moving through Texas and are expected eventually to reach California.

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00:19:21,642 --> 00:19:30,638

If a fertilized queen should land aboard a cross-country truck or stow away in someone's camping gear, they could quickly infest fast new areas.

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00:19:31,638 --> 00:19:41,634

Scientists have projected that the region as far northwest as Seattle, Washington is destined to be infested by fire ants.

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00:19:46,632 --> 00:19:50,630

In the northeast, even New York City may someday be plagued by the ant.

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00:20:01,625 --> 00:20:06,623

Wherever fire ants spread, they will leave their mark on those unlucky enough to encounter them.

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00:20:10,622 --> 00:20:18,618

The scientific name of the fire ant is *Solenopsis Invicta*. It means the unconquered ant.

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00:20:22,617 --> 00:20:26,615

The struggle between man and insects is as old as man himself.

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00:20:26,615 --> 00:20:30,613

We have rarely, if ever, gained the advantage.

181

00:20:30,613 --> 00:20:36,611

In the short time that fire ants have inhabited the United States, they have undergone evolutionary changes.

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00:20:36,611 --> 00:20:41,609

They have quickly adapted themselves to better survive and exploit their environment.

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00:20:41,609 --> 00:20:47,606

Special colonies have been found containing not one, but as many as 20,000 queens.

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00:20:47,606 --> 00:20:54,603

It was recently discovered that some fire ants have adapted their bodies to store food for better survival in cold temperatures.

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00:20:55,603 --> 00:20:58,601

60 years ago, an entomologist wrote,

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00:20:58,601 --> 00:21:07,598

Since the world began, we have never exterminated, we probably shall never exterminate as much as one single insect species.

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00:21:07,598 --> 00:21:14,595

If there ever was an example of an insect we cannot destroy, the fire ant is it.

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00:21:16,594 --> 00:21:23,591

Coming up next, 20th century with Mike Wallace investigates the unsettling cases of murderers Charles Manson and John Wayne Gacy.

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00:21:23,591 --> 00:21:28,589

Then weapons at war takes a look at anti-aircraft cannon, rockets and radar defense systems.

190

00:21:28,589 --> 00:21:33,587

And log on at veterans.com, a new website brought to you by the History Channel.

191

00:21:33,587 --> 00:21:42,583

Veterans.com, a place where veterans, their families and others can connect, share stories and pass on the legacies of all American veterans.