

“ANIMAL SOCIETY”
Episode 09 “Arthropods”
Final Timecoded Script

SERIES INTRO:

001 00:00:01:00 00:00:02:11
Across our world, we live

002 00:00:04:08 00:00:05:06
In cities

003 00:00:05:13 00:00:06:12
And villages

004 00:00:08:04 00:00:10:00
All part of a greater whole

005 00:00:11:03 00:00:12:12
But we’re not alone

006 00:00:14:17 00:00:16:03
They come in herds

007 00:00:17:23 00:00:18:19
Hives

008 00:00:19:18 00:00:20:19
And swarms

009 00:00:21:12 00:00:22:07
Prides

010 00:00:22:18 00:00:23:07
Packs

011 00:00:23:18 00:00:24:12
And pairs

012 00:00:24:21 00:00:26:00
Living in nature

013 00:00:26:12 00:00:28:06
Members of society

EPISODE INTRO:

014 00:00:37:16 00:00:38:21

All across our world

015 00:00:39:01 00:00:40:19

Crawling along the ground

016 00:00:40:23 00:00:42:23

Swimming in the ocean itself

017 00:00:43:00 00:00:44:18

Or flying high over us

018 00:00:44:21 00:00:47:00

Arthropods exist everywhere

019 00:00:47:17 00:00:53:17

A diverse group of invertebrates with exoskeletons, segmented bodies and jointed appendages

020 00:00:55:01 00:01:01:05

Including all forms of insects, spiders, scorpions, centipedes and crustaceans

021 00:01:02:01 00:01:05:03

With nearly 10 million estimated species

022 00:01:05:19 00:01:09:03

They make up over 80% of all known living animals

023 00:01:09:17 00:01:11:19

Coming in all shapes and sizes

024 00:01:11:21 00:01:15:21

From the smallest insect at 25 millionths of a gram

025 00:01:16:02 00:01:19:07

To the largest lobster at over 44 pounds

SEGMENT 1:

026 00:01:20:00 00:01:22:05

The most prolific of all being the ant

027 00:01:22:07 00:01:29:08

A widespread group of insects, with over 12 000 species described of an estimated 22 000 species in existence

028 00:01:29:19 00:01:35:06

They have conquered every inch of our globe, existing on every landmass and continent except Antarctica

029 00:01:35:11 00:01:37:20

They can be found in any variety of environments

030 00:01:37:22 00:01:39:10

From tropical and subtropical

031 00:01:39:13 00:01:41:07

To temperate and even urban

032 00:01:42:00 00:01:47:06

Ranging in size from less than one tenth of an inch long at the smallest to over an inch for the largest

033 00:01:47:19 00:01:49:13

Most being predatory scavengers

034 00:01:49:20 00:01:53:24

Though they may also often eat plant matter and fungus, depending on the species

035 00:01:54:21 00:02:02:13

They are distinguished by their elbowed antennae and node-like body structure, unlike most other insects except for their closest relatives, the wasps

036 00:02:02:18 00:02:12:04

Though while wasps may come in single numbers or smaller groups, ants may come in huge colonies ranging in size from a few dozen individuals to hundreds of millions

037 00:02:12:23 00:02:16:05

Forming nearly a quarter of all animal biomass on earth

038 00:02:16:12 00:02:20:13

Their success largely being due to their social organization and adaptability

039 00:02:21:18 00:02:26:24

All species featuring eusociality, or the highest level of organization of animal sociality

040 00:02:27:07 00:02:30:04

With a clear division of labor into different so-called castes

041 00:02:30:20 00:02:35:23

Including reproductive and non-reproductive groups, overlapping generations within a colony of adults

042 00:02:36:09 00:02:38:00

And cooperative brood care

043 00:02:39:19 00:02:44:13

With many species also being significantly able to vastly modify their surrounding environments

044 00:02:44:18 00:02:50:04

By building enormous and highly complex habitat structures, or colonies, above ground or underneath

045 00:02:50:18 00:02:58:24

Ant colonies are also known as formicaries, made out of sand, dirt, stone pebbles, pine needles, clay or composite materials

046 00:03:00:19 00:03:05:21

They may range from small hills and towers to intricate systems of underground tunnels

047 00:03:06:11 00:03:08:06

To nests high up in trees

048 00:03:08:17 00:03:12:04

Inside logs, under stones and inside hollow stems

049 00:03:12:09 00:03:18:02

With only the army ants leading a life of constant migration, foregoing any nests or hives of any kind

050 00:03:21:03 00:03:32:22

Colonies may also interact and even become fully integrated into a larger supercolony, the largest of which found spanning across Southern Europe, along a nearly 4000 mile stretch of the Mediterranean and Atlantic coast

051 00:03:33:00 00:03:36:04

With millions of interconnected nests and billions of ants

052 00:03:36:15 00:03:42:08

Itself part of an enormous global megacolony, stretching from Japan and Russia to California and Europe

053 00:03:42:14 00:03:51:15

Individuals from continents apart shown to instinctively recognize and cooperate with each other, as well as being able to recognize opposing supercolonies, even within the same species

054 00:03:53:11 00:03:57:19

As ants may often be highly territorial and viciously attack ants of encroaching hives

055 00:03:58:12 00:04:02:01

Attacking by biting with the mandibles and stinging with their posterior stinger

056 00:04:02:04 00:04:06:03

Sometimes also able to spray irritant chemicals such as formic acids

057 00:04:06:13 00:04:11:09

Some, such as the bullet ants of South America, have the most painful sting of any insect

058 00:04:13:10 00:04:22:23

Ants communicate primarily through the use of pheromones, or chemical signatures produced by a variety of glands all along the ant's body that other ants then perceive through their elongated antennae

059 00:04:23:03 00:04:26:22

Providing detailed information about the precise direction and distance of the scent

060 00:04:26:24 00:04:32:19

Used for individual and hive recognition, as well as to mark trails to be used by other ants to locate food

061 00:04:32:24 00:04:39:07

As well as alarm pheromones, as used by injured or crushed ants to signal defensive attacks and attract more ants

062 00:04:39:13 00:04:47:05

Some species even using so called propaganda pheromones, scents that simulate enemy ant pheromones to confuse them and incite fights among their enemies

063 00:04:47:13 00:04:49:20

Touch patterns also assist in communication

064 00:04:50:03 00:04:52:09

For mating purposes and individual recognition

065 00:04:53:02 00:04:57:06

Some species may also communicate through sounds by rubbing together their mandibles

066 00:04:58:04 00:05:02:02

Ant colonies can easily be divided into a strict social hierarchy of three castes

067 00:05:02:04 00:05:05:08

Most commonly include one or more large egg-laying queens

068 00:05:05:19 00:05:08:10

Being the mother of all ants within their colony

069 00:05:08:21 00:05:17:05

Sometimes however, a hive develops with no queen, instead featuring breeding common ants, known as gamergates, sharing breeding and construction duties

070 00:05:17:14 00:05:21:07

Though this is rare, present only in 1% of all ant species

071 00:05:21:21 00:05:28:01

The second caste otherwise being the largest, made up of thousands or millions of sterile females known as workers

072 00:05:28:07 00:05:31:09

They are tasked with anything from construction to foraging to brood care

073 00:05:31:14 00:05:33:05

As well as defense of the hive

074 00:05:33:09 00:05:38:21

Known for their incredible strength in relation to their body size, easily able to lift objects three times their own body weight

075 00:05:39:11 00:05:44:13

The last caste being a large number of sexual winged males and females that may appear for a limited time

076 00:05:44:16 00:05:45:19

Known as alates

077 00:05:46:05 00:05:51:17

That seasonally may depart the nest in large nuptial flights, usually in late spring or early summer

078 00:05:51:24 00:05:55:16

When the weather is hot and humid, making it easier for the ants to take flight

079 00:05:56:01 00:05:58:23

The winged males, or drones, taking flight first

080 00:05:59:02 00:06:02:18

Using visual cues to establish a recognizable mating ground with their peers

081 00:06:02:24 00:06:06:13

The drones then secrete a mating pheromone for the females to follow

082 00:06:06:19 00:06:10:15

Though they may also mate with existing queens by entering an existing colony

083 00:06:10:19 00:06:15:11

Emitting a mating pheromone to signal his intent so that the workers will let him through without attacking

084 00:06:15:15 00:06:23:06

Mating itself is quick, the male either mounting the queen within seconds or mounting the winged female in the air, forcing her down to land and mate

085 00:06:23:17 00:06:30:06

Females typically mate with as many as ten or more drones, storing the sperm within their body to continuously fertilize their own eggs

086 00:06:30:21 00:06:36:14

The drones dying soon after mating, while many of the females may die from not finding suitable nesting grounds

087 00:06:36:20 00:06:44:14

The mated females who successfully finds suitable nesting grounds soon breaking their wings and selectively fertilizing a few eggs to start a worker population

088 00:06:44:18 00:06:51:20

The first generation of workers being smaller and more fragile, though still able to assist her with the construction of the hive and later on caring for more eggs

089 00:06:51:24 00:06:55:16

If the eggs have been fertilized by a male, the progeny will be female

090 00:06:55:19 00:06:57:06

If not, it will be male

091 00:06:57:10 00:07:03:13

The egg then hatches into a larval stage, which is significantly cared for by either the queen herself or worker ants

092 00:07:03:16 00:07:10:17

Regurgitating liquid food to it, a process that continues into adulthood, forming a shared communal or "social" stomach of the hive

093 00:07:11:00 00:07:16:12

The workers also frequently move the larvae around to maintain a consistent temperature to ensure proper development

094 00:07:17:02 00:07:22:06

The larvae then grows through a series of four or five molts before entering a pupal stage

095 00:07:22:15 00:07:26:01

The differentiation of different castes occurs during this stage

096 00:07:27:04 00:07:30:16

Determined in large part by the nutrition the larvae obtains

097 00:07:31:05 00:07:36:03

After emerging from the pupae, winged males or females emerge from the nest to seek a mate

098 00:07:36:18 00:07:42:17

While new workers may spend the first few days caring for the queen and other young before moving onto digging and foraging duties

099 00:07:42:19 00:07:45:15

The shifting duties becoming what is known as temporal castes

100 00:07:46:01 00:07:49:00

Determining the social ranking within the worker caste itself

101 00:07:49:07 00:07:53:00

While they may be active all year long in tropical and subtropical regions

102 00:07:53:02 00:07:57:00

In temperate climates, ants may enter a state of dormancy during winter

103 00:07:57:14 00:08:03:01

Lowering their metabolism and spending less time in an active state while seeking shelter deeper inside the hive

104 00:08:03:13 00:08:07:22

Ant colonies are typically long-lived, with ant queens living up to 30 years in the wild

105 00:08:08:00 00:08:11:08

Compared to the average worker lifespan between 1 to 3 years

106 00:08:11:15 00:08:16:00

Many dying from injuries sustained during foraging, defense of the hive or predation

107 00:08:16:10 00:08:18:15

Though most commonly by other ants

SEGMENT 2:

108 00:08:32:07 00:08:32:23

Bees

109 00:08:34:07 00:08:38:09

Insects closely related to ants and wasps, from which they originally evolved

110 00:08:39:07 00:08:43:06

They are instantly recognizable and found on every continent except Antarctica

111 00:08:43:15 00:08:45:22

With nearly 20 000 species described

112 00:08:46:01 00:08:52:10

They are distinct for their black and yellow coloration, short, thick body and branching or fan-like bristles on their forelimbs

113 00:08:52:12 00:08:55:06

Used for cleaning their antennae, unlike those of wasps

114 00:08:55:13 00:09:01:11

They range in size from the tiny stingless bee species, with worker bees being less than a tenth of an inch long

115 00:09:02:01 00:09:05:09

To the largest leafcutter bee, nearly 20 times as large

116 00:09:06:04 00:09:10:16

Unlike many other insects and arthropods, they are pollinators rather than predators

117 00:09:12:00 00:09:17:13

Feeding on nectar from flowers for sustenance while collecting pollen or floral oils to provide for their young

118 00:09:18:15 00:09:21:22

Their diet leading to a highly specialized lifestyle and appearance

119 00:09:23:17 00:09:28:08

As flowers grew longer tubes, bees developed longer tongues to extract the nectar

120 00:09:28:22 00:09:32:08

Developing so-called scopal hairs on their legs or abdomens

121 00:09:33:05 00:09:38:01

As well as pollen baskets, a cavity in the hind legs, both used to carry pollen

122 00:09:38:07 00:09:44:21

Bees have thus developed to become largely symbiotic with their environment, carrying the pollen grains from male plants onto females

123 00:09:45:03 00:09:48:21

Assisting in the growth and reproduction of a large number of flower species

124 00:09:49:08 00:09:57:20

As well as by the production of beeswax, excreted by worker bees for construction purposes, which may in turn be eaten upon being discarded by many bird species

125 00:09:59:05 00:10:03:05

Or, as with honey, eaten even by larger mammals such as bears

126 00:10:04:05 00:10:09:17

Honey itself being a substance secreted by honey bee workers as regurgitated and concentrated flower nectar

127 00:10:09:20 00:10:12:02

Stored within the hive for later consumption

128 00:10:12:24 00:10:15:15

Bees primarily navigate through eyesight and smell

129 00:10:16:14 00:10:24:24

Using a pair of large compound eyes taking up much of their heads, along with three smaller simple eyes that provide additional visual information on light intensity

130 00:10:26:22 00:10:32:15

Being particularly sensitive to the bright color patterns and even ultraviolet light emissions by desirable flowers

131 00:10:35:16 00:10:44:23

Their antennae additionally being highly sensitive to both touch, smell and taste, along with small hair-like receptors that can detect air movement, providing a semblance of hearing

132 00:10:48:13 00:10:51:10

Communicating through the use of pheromones and flight patterns

133 00:10:52:01 00:10:55:19

As most bees are highly social animals, either communal or eusocial

134 00:10:57:21 00:11:03:05

Living in various types of communities, from hives and colonies to smaller groups, depending on the species

135 00:11:06:17 00:11:11:04

The most advanced of these colonies found among honey bees, bumblebees and stingless bees

136 00:11:11:15 00:11:15:00

Being highly eusocial, with a strict social structure within the colony

137 00:11:17:02 00:11:22:04

With cooperative brood care and a clear division of labor into reproductive and non-reproductive adults

138 00:11:22:24 00:11:27:19

Each such colony having anywhere between 50 to 200 individuals as with bumblebees

139 00:11:28:08 00:11:30:23

Up to 60 000 individuals for honey bees

140 00:11:32:19 00:11:35:04

Featuring highly differentiated castes

141 00:11:35:10 00:11:37:22

Distinct both in behavior and appearance

142 00:11:38:15 00:11:45:22

Consisting of a matriarch, or queen, spawning all other females, also being the largest and often the only reproductive female of the colony

143 00:11:47:12 00:11:51:10

Largely non-reproductive female workers making up the bulk of the colony

144 00:11:52:11 00:11:58:22

Tasked with both feeding the larvae and building the colony or hive, as well as foraging for pollen and nectar

145 00:11:59:22 00:12:04:14

Some species, such as the honey bee, additionally able to produce beeswax for construction purposes

146 00:12:07:12 00:12:11:09

And male drones at certain stages, selectively bred by the queen seasonally

147 00:12:11:24 00:12:15:17

To help start new colonies elsewhere along with selectively bred queens

148 00:12:18:08 00:12:21:13

Though most species of bees are only primitively eusocial

149 00:12:21:19 00:12:25:16

With only rudimentary classes differing only in behavior rather than morphology

150 00:12:25:24 00:12:28:20

Featuring only smaller colonies of a dozen or less

151 00:12:30:06 00:12:33:18

The matriarch, or queen, differing only occasionally in size

152 00:12:34:01 00:12:37:01

While workers and drones are generally identical in appearance

153 00:12:37:08 00:12:38:14

As with Sweat bees

154 00:12:41:00 00:12:46:01

While a few species, such as carpenter bees, leafcutter bees and mason bees are solitary

155 00:12:46:06 00:12:51:13

Every female being fertile and constructing their own nest, often in the ground or in hollow reeds or twigs

156 00:12:52:15 00:12:57:01

As such, mating practices may differ greatly depending on the species and social structure

157 00:12:57:09 00:13:01:05

Honey bee colonies being perennial, with each queen succeeded by a younger one

158 00:13:01:10 00:13:08:07

Born as a larvae out of one of the queen's many eggs and raised to become a queen by being fed a so called royal jelly by the worker bees

159 00:13:08:10 00:13:11:15

A highly specialized secretion from glands in the heads of worker bees

160 00:13:11:24 00:13:19:04

Initially fed to all larvae, the workers continue to feed the larvae set to be the new queen for far longer than those of drones or workers

161 00:13:19:11 00:13:22:09

The larvae then becomes a pupa for an additional 8 days

162 00:13:23:06 00:13:25:01

Before hatching as a virgin queen

163 00:13:26:08 00:13:29:12

Taking her nuptial flight along with the drones raised alongside her

164 00:13:29:17 00:13:33:02

After a brief courtship of aerial displays, mating takes place

165 00:13:33:16 00:13:35:19

Most queens mating with multiple males

166 00:13:36:00 00:13:37:22

To ensure genetic diversity

167 00:13:38:08 00:13:42:18

As well as retaining a large amount of sperm inside a special compartment inside her ovipositors

168 00:13:43:00 00:13:46:04

Deciding each time she lays an egg whether to inseminate it or not

169 00:13:46:16 00:13:49:05

As much like ants, most bees are haplodiploid

170 00:13:49:08 00:13:52:20

Wherein females, being diploid, develop from fertilized eggs

171 00:13:53:00 00:13:58:09

While males, being haploid, develop from unfertilized eggs, carrying only one copy of each gene

172 00:13:58:19 00:14:05:14

Further easing eusociality since all females take on 100% of their father's genes and 50% of their mother's

173 00:14:06:00 00:14:10:23

Making sisters share 75% of their genes, a phenomenon known as supersisters

174 00:14:11:01 00:14:15:02

Where sisters are more closely related to each other than to their own offspring or mothers

175 00:14:17:04 00:14:22:07

The eggs and subsequent larvae are then cared for by the worker bees to breed a new generation

176 00:14:22:10 00:14:25:14

Each generation of worker bees lasting 1 to 2 years

177 00:14:25:19 00:14:28:09

While queens typically live for between 3 to 4 years

178 00:14:29:19 00:14:34:19

Bees having relatively few natural predators due to their ability to sting for defensive purposes

179 00:14:35:01 00:14:39:16

Many female bees having the ability by using modified ovipositors as stingers

180 00:14:40:02 00:14:43:04

Injecting venom that may cause considerable pain to its victim

181 00:14:43:19 00:14:47:23

As well as releasing alarm pheromones to attract other bees to attack the same target

182 00:14:49:11 00:14:54:23

Honeybees additionally having barbed stingers to open up the wound further, thus able to deliver more of its venom

183 00:14:55:24 00:15:02:09

When stinging a larger mammal with thicker hide, the barbs may however lead to the stinger becoming permanently lodged inside its victim

184 00:15:02:19 00:15:05:18

Tearing loose from the bee's abdomen, leading to its death

185 00:15:06:18 00:15:15:11

Some, such as Africanized bees which are a hybrid of European and African honey bees, can also be particularly aggressive, chasing any perceived threat for miles

186 00:15:16:20 00:15:21:23

The collective stings of an entire swarm capable of killing even larger mammals such as horses or cattle

187 00:15:22:06 00:15:25:03

Lending them the alternative name of killer bees

188 00:15:25:13 00:15:28:18

Many honey bees sacrificing themselves in defense of the colony

SEGMENT 3:

189 00:15:41:11 00:15:42:06

Spiders

190 00:15:43:13 00:15:47:08

Existing worldwide, on every continent and landmass except Antarctica

191 00:15:48:10 00:15:50:17

They can be found in every environment imaginable

192 00:15:51:07 00:15:53:08

From tropical jungle to arid desert

193 00:15:54:12 00:15:56:07

To homesteads and urban areas

194 00:15:57:03 00:16:02:19

With over 43 000 species described, ranging in size from a few millimeters for the smallest spider

195 00:16:03:06 00:16:05:07

Up to a foot across for the largest

196 00:16:06:11 00:16:11:18

Another form of arthropod, though only distantly related to insects, they are arachnids

197 00:16:12:24 00:16:17:18

A group also including scorpions, ticks, mites, solifuges and harvestmen

198 00:16:18:05 00:16:21:01

Having evolved over 300 million years ago

199 00:16:21:14 00:16:24:23

Like their relatives, most spiders are exclusively predatory

200 00:16:25:04 00:16:27:22

Feeding on anything from smaller insects and arthropods

201 00:16:28:01 00:16:29:09

To mice and lizards

202 00:16:30:10 00:16:33:17

Though some juvenile spiders also feed on plant nectar

203 00:16:34:20 00:16:37:08

Spiders are also distinct for having 8 legs

204 00:16:37:14 00:16:39:04

Proportionally large fangs

205 00:16:39:08 00:16:42:02

As well as their complete lack of antennae and wings

206 00:16:43:15 00:16:46:09

And the silk-weaving abilities of most species

207 00:16:46:19 00:16:49:15

Excreted from silk glands at the rear of the spider

208 00:16:49:23 00:16:54:17

Starting as a liquid protein before turning into a solid nylon-like silk when drawn out

209 00:16:55:17 00:17:02:00

Extremely strong yet highly flexible, spider silk is among the strongest substances on earth relative to its mass

210 00:17:02:13 00:17:07:07

With the tensile strength of steel, yet significant elasticity not unlike nylon

211 00:17:09:16 00:17:14:16

Spiders use the silk to construct a variety of complex web structures, depending on the species

212 00:17:16:16 00:17:18:17

Most commonly used to protect their eggs

213 00:17:18:23 00:17:20:15

But also to trap their prey in

214 00:17:21:23 00:17:24:08

Their web systems including orb webs

215 00:17:24:18 00:17:25:15

Sheet webs

216 00:17:26:01 00:17:26:22

Cob webs

217 00:17:27:06 00:17:28:05

Funnel webs

218 00:17:28:14 00:17:29:22

And tubular webs

219 00:17:30:23 00:17:37:13

The spider typically holding fast at the fringes of its web, awaiting the tell-tale vibrations of a nearby insect trapped in it

220 00:17:39:01 00:17:41:21

Most webs being not only strong but sticky

221 00:17:45:04 00:17:48:21

Though the webs eventually lose their stickiness and thus limit their efficiency

222 00:17:49:07 00:17:54:10

Leading to the spider consuming most of its own web to recuperate some of the energy spent building it

223 00:17:55:24 00:17:59:03

Or to abandon it altogether to construct a new web nearby

224 00:17:59:13 00:18:02:12

Some species also use specialized webs for other purposes

225 00:18:02:16 00:18:08:22

Such as the diving bell webs of water spiders, filled with air for the water-dwelling species to breathe underwater

226 00:18:09:05 00:18:12:06

Hunting insects on the water surface, attacking from below

227 00:18:12:17 00:18:17:18

Or smaller webs for throwing, as with the webs of net-casting spiders and bolas spiders

228 00:18:18:14 00:18:22:15

Lunging at their prey to envelop them in a pre-made sticky web to drag them back to it

229 00:18:23:10 00:18:24:11

As well as gossamer

230 00:18:24:16 00:18:31:07

A particularly fine type of silk to form balloons or kites, intended to be caught by the wind to transport the spider to new areas

231 00:18:32:20 00:18:36:06

Particularly used by young spiders, also known as spiderlings

232 00:18:37:05 00:18:43:22

While a few species don't use nets for hunting at all, instead chasing after their prey, relying on eyesight, speed and ambush techniques

233 00:18:45:01 00:18:50:02

Though most spiders only retain rudimentary eyesight, despite commonly having between 6 to 8 eyes

234 00:18:50:06 00:18:56:21

Instead relying on bristles and chemical sensors all along their bodies to detect pheromones and nearby movements and vibrations

235 00:18:58:07 00:19:00:06

Spiders then eat by one of two means

236 00:19:00:17 00:19:05:00

Either by secreting digestive enzymes into their prey to liquefy their insides

237 00:19:05:14 00:19:12:01

Or by grinding their prey down to a fleshy pulp using the large appendages immediately before their mouth, known as chelicerae

238 00:19:13:14 00:19:18:02

As the narrow gut of the spider only allows for liquid foods, much like other arthropods

239 00:19:20:13 00:19:24:23

Nearly all spiders also use venom to incapacitate or kill their prey before feeding

240 00:19:25:20 00:19:29:09

Secreted from large foldable fangs at the ends of their chelicerae

241 00:19:31:04 00:19:35:11

The venom of some spiders even capable of killing larger mammals as a defense mechanism

242 00:19:36:21 00:19:39:02

Such as rats, cats and monkeys

243 00:19:41:08 00:19:48:10

Only cribellate orb weavers lacking venom altogether, instead crushing their prey with silk, rapidly weaving it around them once caught

244 00:19:50:11 00:19:55:12

Normally highly solitary, spiders typically only come together during mating or as spiderlings

245 00:19:56:22 00:20:00:06

Only a few cases of tropical or subtropical spiders being social

246 00:20:01:07 00:20:04:22

Forming colonies to take down larger prey such as birds and bats

247 00:20:05:19 00:20:13:03

As well as using cooperative nest maintenance, featuring larger, far more complex webs and intricate structures than any other species

248 00:20:14:00 00:20:19:15

Sometimes coming in colonies of thousands of individuals, who hatch and live out their entire lives within a single colony

249 00:20:20:06 00:20:24:22

Which may additionally swarm between different nest sites with synchronized breeding seasons

250 00:20:25:15 00:20:30:05

Females laying eggs in new locations every time to form the nest site of the colony

251 00:20:31:10 00:20:35:09

As such, communication between spiders may be extensive, although simple

252 00:20:37:07 00:20:43:01

Primarily including touch patterns of vibrations and chemical signals unique to each species and even gender

253 00:20:43:24 00:20:47:00

Relying entirely on instinct rather than learned behavior

254 00:20:49:06 00:20:51:05

Such as those with courtship rituals

255 00:20:51:16 00:20:54:04

Typically initiated by the often smaller male

256 00:20:54:15 00:21:00:08

Courtship rituals may vary from highly precise patterns of vibrations in the female's web by an approaching male

257 00:21:00:21 00:21:03:01

To touch patterns on the female itself

258 00:21:03:12 00:21:05:03

Effectively hypnotizing her

259 00:21:06:14 00:21:13:02

While with jumping spiders, known for their superior eyesight compared to other species, may use gestures and dances to court the female

260 00:21:14:11 00:21:17:03

Mating is then done internally but indirectly

261 00:21:17:15 00:21:21:16

The male spinning a small sperm web which they can then ejaculate into

262 00:21:22:03 00:21:27:15

Transferring it to syringe like structures on the tips of their exterior mandibles, also known as pedipalps

263 00:21:28:14 00:21:30:11

Used to inseminate the female

264 00:21:30:20 00:21:35:02

After breaking the hypnosis once mating is completed, the female often eats the male

265 00:21:35:11 00:21:39:15

Who willingly sacrifices himself to provide the nourishment needed to produce the eggs

266 00:21:40:10 00:21:45:14

The female may then lay up to 3000 eggs in one or more egg sacs made out of its silk

267 00:21:46:21 00:21:51:01

Often hidden within designated nests in hollow trees or underneath vegetation

268 00:21:52:06 00:21:56:02

Sometimes even constantly relocated by the mother in order to protect it

269 00:21:57:05 00:22:01:01

The spiderlings pass through all their larval stages inside the egg before hatching

270 00:22:04:12 00:22:08:02

Emerging as small, often white or transparent versions of their parents

271 00:22:10:03 00:22:13:11

And while many species abandon the spiderlings to disperse upon hatching

272 00:22:14:00 00:22:17:18

Some species may transport, protect or even feed their young fresh prey

273 00:22:18:21 00:22:21:04

Or by regurgitating food into their mouths

274 00:22:22:10 00:22:27:12

Once large enough to molt into juvenile form, the spiderlings disperse to find new hunting grounds

275 00:22:29:02 00:22:32:08

The average life span of spiders varying greatly between species

276 00:22:32:22 00:22:35:06

From 1 to 2 years, as with orb weavers

277 00:22:35:19 00:22:39:05

To up to 25 years, as with the larger species of tarantula

OUTRO:

278 00:22:40:09 00:22:41:04

Spiders

279 00:22:41:16 00:22:42:13

As with ants

280 00:22:43:00 00:22:43:19

And bees

281 00:22:44:15 00:22:47:17

May come in all shapes, sizes and social configurations

282 00:22:48:14 00:22:49:16

Though mostly small

283 00:22:49:23 00:22:51:17

They may find safety in numbers

284 00:22:52:05 00:22:54:11

Or in their ability to avoid predation

285 00:22:54:24 00:22:56:20

Or by being predators themselves

286 00:22:57:13 00:22:58:15

But whether hunters

287 00:22:59:09 00:23:00:06

Or hunted

288 00:23:00:20 00:23:01:14

Pollinators

289 00:23:01:23 00:23:02:22

Or predators

290 00:23:03:12 00:23:04:01

Alone

291 00:23:04:13 00:23:06:06

Or in huge colonies and hives

292 00:23:07:09 00:23:10:07

They all form an essential component in our ecosystem

293 00:23:11:05 00:23:12:12

Like links in a chain

294 00:23:13:15 00:23:15:09

They are all members of a society

295 00:23:16:15 00:23:18:06

An animal society

METRICS:

025 00:01:16:02 00:01:19:07

To the largest lobster at over 20 kilograms

032 00:01:42:00 00:01:47:06

Ranging in size from less than 2 millimeters long at the smallest to over 3 centimeters for the largest

114 00:08:55:13 00:09:01:11

They range in size from the tiny stingless bee species, with worker bees being less than 2 millimeters long

185 00:15:06:18 00:15:15:11

Some, such as Africanized bees which are a hybrid of European and African honey bees, can also be particularly aggressive, chasing any perceived threat over vast distances