ANGEL

plant et træ

Kort om filmen:
EGETRÆETS HJERTE er en ny dokumentarfilm der tager publikum med på en eventyrlig rejse i naturens verden, hvor det kribler, krabler, piber og pusler!

I skoven står et mægtigt 210-årigt egetræ. Træet er hjem for et væld af skabninger. Mange og mangeartede, som alle har taget bolig i egetræet: Egern, nøddesnudebiller, skovskader, myrer, husmus og mange, mange flere… Hele dette levende, summende og fantastiske univers er dybt afhængig af det majestætiske træ – fra dets rødder til dets krone – for at få føde, ly og beskyttelse. Over et år opleves naturens cyklus med de skiftende farver og årstider samt dyrenes og insekternes tilpasning og urgamle instinkter.

Oplev livets gang for alle de små dyr og væsener, der lever side om side - ligesom os - i deres eget lille samfund. Her er der også udfordringer med opdragelse, nabospektakler, fuldtidsarbejde, gensidig afhængighed og kamp for overlevelse.

EGETRÆETS HJERTE var udtaget til både Berlin Film Festival og CPH:DOX og er et overflødighedshorn af smukke billeder, der skriver sig ind i traditionen af naturdokumentarer for hele familien såsom PINGVINMARCHEN, EARTH og SNELEOPARDEN. Den har en usædvanlig rollebesætning og en inspirerende indsigt i levende væseners skønhed og skrøbelighed. En sanselig og poetisk hyldest til livet, hvor naturen alene får lov til at udtrykke sig.

Originaltitel: Le Chêne

Engelsk titel: Heart of Oak

Dansk biografpremiere: 20. april 2023

Dansk distributør: Angel Films

Instruktion: Laurent Charbonnier & Michel Seydoux

Produktionsselskaber: Camera One, Winds & Gaumont

Produktionsland: Frankrig

Spilletid: 80 min.

Genre: Dokumentar

Produktionsår: 2022

Link til trailer (obs. arbejdsudgave – må ikke offentliggøres): https://youtu.be/ohQbMjmUR0o

(Billede fra filmen)

Om samarbejdet med PLANT ET TRÆ

Den danske distributør bag EGETRÆETS HJERTE, Angel Films, er indgået i et samarbejde med organisationen Plant et Træ. Det overordnede formål er, at filmens danske biografpremiere medvirker til, at der sammen med børn bliver plantet flere træer i den danske natur samtidig med, at børnenes indlæring om træers vilkår og vækst styrkes. Dette gøres konkret ved at Angel Films donerer 2 kr. per solgt biografbillet til Plant et Træ.

Det er ligeledes målet, at filmen kan være med til at minde både børn og voksne om træernes skønhed og øge interessen for deres betydning for naturen – både som levende vækster der hele tiden forandrer sig, men også som hjem for et væld af naturens skabninger.

EGETRÆETS HJERTE er en film fortalt i et roligt tempo, hvor der hverken er voice-over eller dialog. Der gives i stedet plads til, at naturen selv indtager rollen som fortæller. Dette fremhæver naturens harmoni og skønhed, hvor der er plads til ro og fordybelse; til at ånde ud og blot være. Filmen bliver dermed en både fascinerende og lærerig rejse i naturens verden, et incitament for både børn og unge om at værne om naturen omkring os og en mulighed for støtte Plant et Træs arbejde.

Billeder fra filmen

PRODUCTION NOTE
FROM BARTHÉLÉMY FOUGEA

The observation of living things no longer occurs without a hidden environmental agenda: without an ambiguous awareness of their fragility, as well as their amazing ability to adapt. The same is true of their cinematic representation. At the same time, over the last few years our vision of nature has opened onto a new universe. The world of plants and more particularly trees. Like a new frontier, a new paradigm of the non-human world. We have become aware of the immense riches of the plant universe. Nature documentaries were born of that new awareness. But none has yet looked at trees via the prism of their inhabitants' trajectories and issues. That is precisely what makes the project of our film HEART OF OAK so singular, and so worthy of a film script. We can feel from within the tensions, joys, and relationships that "Heart of the Oak" allows us to develop.
To my mind, the producer of many nature films, this film is a unique opportunity to plunge our audiences into the sensorial and poetic world of the king of trees. To discover in a lyrical vein the biodiversity that it engenders and hosts. Animals, large and small - insects, birds, and mammals - are our heroes, with whom we will come to realize how essential this nurturing tree is: a little as if we were watching an apartment building to spy on the lives and adventures of its tenants. Few live-action feature films have taken up the challenge of a complete immersion into the heart of a tree, without voice-over commentary.

PRODUCTION CHOICES

Our artistic choice of an exploration guided by our senses alone required extremely meticulous work. We began our considerable development work in 2017, reconciling scientific rigor and narrative imperatives with the help of scientists from the National Museum of Natural History.
Counselled throughout by specialists in fauna, flora and biodiversity, Michel Fessler, Michel Seydoux and Laurent Charbonnier worked to reconcile film direction with a fictional, naturalistic story. The complexity of our production prompted us to break down each sequence and create a complete storyboard for the film. Our shoot at the tree and all our scouting lasted a year and a half to cover all the seasonal cycles.
Associating the complementary competencies of *Caméra One*, *Winds* and *Gaumont* enabled us to combine expertise in the fields of cinematographic production, nature documentaries, and international distribution. Finally, guided by a desire to sensitize audiences to the protection of our natural patrimony, we have made our contribution to this centuries-old challenge by drawing up an ethical charter to produce an eco-responsible film and create an educational kit for an impact campaign to encourage our children to take action.

THE ECONOMIC AND INDUSTRIAL CHALLENGES OF THE PROJECT

We three partners took the artistic and economic challenge raised by this project very seriously. The challenge we met with Heart of Oak was to produce a feature film about living things that allies serious aesthetic and technological intentions, and meant for a mainstream audience.

DIRECTORS' NOTE OF INTENT

A STORY

"Considered the king of trees, the oak symbolizes power and durability: it is the largest and most majestic tree of our forests in the Northern Hemisphere. For many, it is synonymous with hope in a life for future generations."
A hundred-year-old tree and its ecosystem are at the center of our film's action. More than a living plant, it is a habitat. Many animal, plant, mineral and mycelial species live and work on it.
"Heart of Oak" is a place where intrigues between several characters take place throughout the seasons. In this vegetal monad everyone has a role to play. Everyone has their place within the tree. At the top, the jay, a genuine concierge, alerts everyone else to danger. Downstairs, the squirrel is the undisputed boss of the tree. Underground, field mice almost see their burrow swallowed up by hail and rain during a violent summer storm. They need to find all the members of their family before stocking up on acorns for winter. Miniature acorn weevils were lucky during the meteorological anomaly. At their level, they survived the most terrible tsunami ever known to man. Other dangers threaten the inhabitants of the oak. The suspense is worthy of a Hitchcock film. The tree 's resources attract all kinds of envy. Audiences become witnesses to the remarkable stories that play out in and around the oak. Thus, reproduction must take place to perpetuate the species and biodiversity that mark this ecosystem. A symphony of births, but not without some dissonances. The oak gives life to its fellow creatures, but it depends on them for the abundance of its acorns. The birth of a new tree is the outcome of a fragile equilibrium. We propose the life of a single, red-spotted acorn as a mirror image of the oak's cycle. Once the spotted acorn drops from the tree, will it begin to rot, be devoured by a boar, or scattered by a jay? Unless a squirrel seals its fate...
The stories in "Heart of Oak" illustrate a spectacle of savage beauty, in a unique reading of the secrets of our biodiversity: to reveal, acquaint and sensitize, thanks to its proximity and fragility.

A STORY OF ENCOUNTERS

What do a passionate author/director of nature films and an experienced film producer do when they meet? They tell each other stories! It was in fact the meeting of two parallel destinies, and a desire to share our passion with as many people as possible, that allowed for the creation of this film today. We both have a special feeling for nature. Other than the aesthetic desire that guided this project, it was essentially the ethical desire to sensitize audiences to the protection of our natural patrimony that united us. The sensorial and poetic world of the king of trees is an ideal vector - so close to us - to tell emotional, vivid, and intelligible stories, as all great cinematic stories do. Trees, and especially the oak, can designate, signify, and indeed influence us via their existence as a symbol. We needed ten years to develop this idea and to arrive at a project of this magnitude. Thus, Michel Fessler's participation in the writing of the screenplay, and Vincent Copéret's in elaborating the storyboard allowed us to create an ambitious film that speaks about Nature

NARRATIVE ASPECTS

Our idea was to take a documentary subject and tell it with the narrative and technical know-how typical of fictional feature films. It could have been a "*nature film narrative*". But whatever the nomenclature or genre with which the film is classified, our primary intention was to show audiences something they had never seen before. The immensely rich universe of this grand plant allowed us to tell stories that touch audiences, whether young or old. Whatever their origin or ecological awareness, our aim was to surprise them thanks to the activity, image, and history of our oak. The fears, joys, and inter/ intra-specific relations that take shape in the vegetal world of our oak are transmitted to the audience, along with a desire to plunge into our heroes' POV. We see from the viewpoint of the field mouse as he risks being crushed by the boar's hooves. We flit like the jay. We are practically drenched by the storm and rain…

Comprehending the oak via its inhabitants' trajectories and issues, in a natural *"Rear Window",* requires the use modern feature film codes. Beyond brainstorming about shooting nature based on the screenplay's subjects, we looked to the latest audiovisual technologies (360-degree virtual cameras, machinery, special effects, etc.…). We also innovated with the creation of cutting-edge macro-videographic studios and modified standard technical equipment to approach the microscopic worlds and inner universe of living creatures.

A SENSORIAL PARTI PRIS

You will have understood, we have chosen the parti-pris of innovation and contemporary aesthetics, combining the techniques of nature films, the savoir-faire of live-action fiction films and new technologies. Thus, our sound is equal to our visual innovations since we want the viewer to be caught up in a musical symphony from start to finish. In fact, there is no voiced commentary. All we hear are the sounds, cries, and distinctive acoustic traces of our heroes, orchestrated in an original composition by Cyrille Aufort. His music participates fully in the audience's sensorial and complete immersion into the heart of oak and its inhabitants.

LAURENT CHARBONNIER and MICHEL SEYDOUX

THE CHARACTERS

THE OAK

Name:	Pedunculate oak
Latin name:	*Quercus robur*
Born on:	1810
In:	Bracieux
Weight:	9 tons
Height:	17.5 m
Diameter:	112 cm
Volume:	11 m

The oak, which the science of systematics classifies in the family of Fagaceae, like beech and chestnut, is widespread in the Northern Hemisphere. Several hundred species of the genus *Quercus* have been identified (200 to 600 depending on the author).

Oaks are found in some very different natural milieus. In North Africa and California, it tolerates arid climates, whereas in Colombia and Central America it subsists in tropical humidity. But it is in the temperate zones of Central Asia, North America, and Europe that it thrives best.

Europe is home to twenty species, most of which in Mediterranean regions. **In France, eight species of oak grow naturally.**

Four belong to the group *Lepidobalanus* known as white oak, such as the pedunculate oak (*Quercus robur*), the sessile oak (*Quercus petraea*), the pubescent oak (*Quercus pubescens*), and the Tauzin oak (*Quercus pyrenaica*).

All are deciduous or marcescent. Which is to say they shed their leaves every year with the arrival of bad weather or, like the pubescent oak, as they break into bud.

Four others are classified in the group of Cerris, known as red oak: the cork oak (*Quercus suber*), the holly oak (*Quercus ilex*), the kermes oak (*Quercus coccifera*), and the Turkey oak (*Quercus cerris*). Their leaves are either deciduous or evergreens.

Pedunculate versus sessile oak

Among the species of the white oak group, pedunculate and sessile oaks are the most important, from both an economic and environmental point of view.
These two oaks are widely distributed over a vast territory that ranges from Northern Spain to southern Scandinavia, and from Ireland to Eastern Europe. The sessile oak's territory is included in the pedunculate oak's, but its reach is limited to the western part of Ukraine, whereas the pedunculate oak extends as far as the Urals. They are present in the plains on most types of soil from sea level to 1800 m altitude.
Their natural hybridization has been dealt with in many studies. The sessile oak more often pollinizes the pedunculate oak than vice versa. That situation favors species succession: the pedunculate oak, a pioneering species, is succeeded by the sessile oak, a post-pioneer species.
Although it prefers fertile, well-irrigated soils, the pedunculate oak is very tolerant of continental conditions and climate. It even endures flooding. The sessile oak possesses a wider environmental niche than its cousin. It thrives in soils whose pH values range from 3.5 to 9. It tolerates droughts and poor soil better than the pedunculate oak but does not appreciate flooding.

On plains, plateaux, and hills, the pedunculate oak is a pioneer species, while the sessile oak first succeeds later. In the case of dry summers, the sessile oak is the last stage in vegetation dynamics. In

valleys and flood zones, the pedunculate oak is a species at the end point of succession along with ash, big maples, and elms.

Peduncle, are you there?

As its name indicates, the pedunculate oak possesses a peduncle. Of course, but what kind of peduncle? One that connects the acorn to the branch, or one that connects the leave to the branch? Here it is a question of the long peduncle that connects the acorn to the branch.
On the other hand, the acorn of the sessile oak has only a very short peduncle. The length of the peduncle is one of the differentiating criteria between the pedunculate and sessile oaks.
Moreover, the pedunculate oak acorn is ovoid with black longitudinal stripes. Pedunculate oak acorns are often individual, whereas those of the sessile oak come in groups of 2 to 6.
However, the pedunculate oak's leaf stalk is short, while the sessile oak's is longer.

The two trees are likewise differentiated via:
- a different habit: irregular and distorted with horizontal boughs for the pedunculate oak, and regular, fan-shaped for the sessile oak.
- a rough coarse bark for the pedunculate oak, smoother for the sessile oak
- Clustered foliage and a gapped crown for the pedunculate oak and a more massive crown for the sessile oak that lets through less light.

The colonizing oak

A research team at Inra's Forestry Unit carried out a study of the history of territorial colonization by oaks, and more particularly the pedunculate oak since its appearance on Earth. Herewith, their main conclusions:
The first signs of oak, identified by means of North American fossils, date back to the Oligocene (35 million years ago). Genus Quercus literally burst onto the scene toward the end of the Tertiary period, and most current species are thought to have differentiated as of the Pliocene epoch (10 million years ago). The zone of genus diversification was no doubt located in Southeast Asia or North America. At the end of the ice age, sessile and the pedunculate oak populations split into three isolated zones of refuge (split among the Iberian Peninsula and two other, more disparate refuges, between Italy and the Balkans).
As the climate warmed, the oaks migrated from their three refuges, at first northwards and then in various directions depending on their origins. That progression took place very quickly – at an average speed of 380 m per year. That kind of speed cannot be the result of human beings carrying acorns while themselves migrating, nor of Eurasian jays transporting them, however efficient they may be.
Analyses of pollen fossils reveals that the colonization of European territory was the result of a few rare episodes of massive pollen dispersion over very long distances.
In 6 000 years, the jig was up, and the oak now occupies all Europe.

Genome sequencing of the oak
Inra and CEA research teams have just sequenced the genome of the pedunculate oak. It was the first sequencing of a species of the genus Quercus, very widely present in the Northern Hemisphere. Three years of work allowed for deciphering the entire set of genetic information carried by its 12 pairs of chromosomes. The researchers characterized 50 000 genes and estimate that half the 1.5 billion basic pairs of the genome were made up of repeated elements. Most notably, their work allowed us to better understand how trees adapt to environmental variations and will provide elements to anticipate their response to climate change. Tree genomes seem to be on the whole more complex and voluminous than animals'. Is such exceptional genetic diversity a guarantee of their ability to withstand any modifications?

Global warming affects oaks too

It is now recognized that the intensity and speed of climate change are such that we must expect the total eradication of less well adapted plant species. The same holds true for oaks. The more a species of oak was challenged by climate stress during its evolution, the more it will have been obliged to adapt via mutations to survive until today, and the greater will be its genetic diversity and ability to respond to new climatic conditions tomorrow.

The Life of an Oak

How is the length of human life comparable to a tree like the oak?

If we consider that average life expectancy at birth for an inhabitant of Western Europe is 80 years, an oak that old still has a long life ahead of it.
In the universe of trees in general, and more particularly of the oak, times passes on a different scale. Of course, it cannot compete with the longevity of the *Bristlecone pine* implanted in the White Mountains of California, one of whose ages has been evaluated at 5065 years, but the prospect of living one or several centuries, indeed a millennium, in no way strikes fear into its heart.
It is built to last, unless a human's irreversible intervention brutally interrupts its life, or a tornado uproots it.
The oak has a long-term view of existence.

A place in the sun

As soon as it germinates, the stalk of the oak strives to grow upwards. Its vital force spurs it on to search for maximal light, and that will hold true for the rest of its life. Given the existence of a trunk, a rigid structure par excellence, the tree can rise above all other plants and tower over them. It therefore has a certain advantage in the race for a place in the sun.

Destiny, destiny!

Nevertheless, depending on the environment into which it was born, no oak will develop in the same way. Even though there is such a thing as genetic determinism proper to each species, and which conditions its growth, the oak still has to reckon with its environment. And not disperse its energy fabricating useless branches.
For an oak, germinating and growing in a forest, bocage or elsewhere does not imply the same future. In a public or private forest, its destiny is most often that of a production tree. It is expected to touch the sky, as straight as possible, and not to waste energy producing useless branches.
The techniques of sylviculture strive to give this gem of French forestry the appropriate allure. Throughout the tree's growth, foresters encourage the growth of small oaks, creating clearings every 8-10 years. The understory (hornbeam, beech) is preserved because it provides the shade needed by the oak's trunk. At approximately the age of 50, future oaks are recognized, and their development is favored. As time goes by, the oak will adopt its characteristic habit in a forest dedicated to the production of lumber: excess trunk, and skimpy crown.
In open fields, competition for light is no longer an issue. The oak develops at its own rhythm. There is no need to produce a gigantic trunk, a solid base suffices. On the other hand, its branches can take on all their glory: ramify at 360° and swell with main and secondary branches.

Silhouette as a sign of the oak's age

Other than the tree's appearance, age is another decisive criterion. A young oak will not carry its crown the same as an adult or mature oak.
In its youth, it sports fine branches and a conical crown.
Adult, its crown swells. Branches made up of sequential bifurcations follow characteristic axes, rectilinear and measuring up to one meter long. Ramification amplifies and the crown densifies.
As the decades pass, its branches continue to develop. When the oak attains maturity, its crown ceases to grow. Heavier branches bend low under their weight. That tendency is most observable in lower main branches. Little by little, its summit sags into an irregular crown reminiscent of a cauliflower.

Scarface!
Oaks of that nature are most often trees pollarded by man for centuries. Cutting the trunk and main limbs more or less high encourages the development of shoots that are harvested at regular intervals. That treatment provokes a swelling of the trunk formed by successive scarring at the same level. Hence the French name trogne (*Scarface*).

The oak outside the forest

For one and all, and especially for the forester, economic valorization of the oak means commercializing its timber. All organized production aims at that finality. Over the last few decades, considerations of preserving biodiversity and the issue of climate change have led to a reconsideration of the role of the tree, and particularly of the tree outside the forest.

THE WEEVIL

Curculio glandium: **Acorn weevil**
We encounter this weevil in both open and sheltered circumstances.
Adults have 2 periods of intense activity separated by a week-long rest: April 15 to July 28 and from August 5 to September 15. There may occur a complete one-year cycle. But there may be a two-year diapause (with the larva patiently waiting underground without developing).

Some years, adult acorn weevils may emerge in early April when oaks begin to germinate. If cold temperatures interrupt the development of oak flowers, the weevil will momentarily feed on other plants. Female weevils generally lay their eggs immediately after the fertilization of female flowers in early July. Exceptionally they may lay their eggs earlier.

The particularity of weevil mandibles

Acorn weevils' mandibles are different from those of other Coleoptera.
Acorn weevil mandibles are inserted side by side to move vertically, whereas other coleoptera's mandibles work horizontally.

Spawning and its strategies

The female acorn weevil appears to investigate the nutritive value of the acorn before laying her eggs. If not suitable, the acorn is abandoned.
If an intruder disturbs the female, she will not lay her eggs.
Laying them takes place shortly after coupling.
Laying them differs depending on the acorn's maturity and the species of the weevil. The two acorn weevils (*elephas* and *glandium*) do not lay in the same way.
The specific disposition of the mandibles allows for boring the acorn. When she bores, the female leans on the acorn and performs a 180° move to pierce it with her rostrum. Her rostrum acts as a drill. When she has stuck in her whole rostrum, she turns 180° and the laying organ (oviscapte) evaginates in the perfectly cylindrical hole. The female may lose her grip on the acorn and find it impossible to recover her position. In that case, her rostrum remains stuck, and she dies.

Acorn weevils spawning on young acorns

When the acorn is very young, the cupule is thick and covers some of the acorn. In that case, the female does not bore deeply into the cupule and deposits her egg in a small depression in the thickness of the cupule. There seems to be a kind of excrescence on the internal wall of the cupule that protects the egg. When hatching, the larva breaks through that excrescence before perforating the acorn to reach the cotyledons. The larva then seals the gallery it has dug with its very fine excrement.

Acorn weevils spawning on older acorns

The cupule has thinned, and the acorn grown longer. Perforation during laying takes place either on the very thin edge of the cupule (a hardly visible hole) or directly within the acorn. In that case, the rostrum breaks through the acorn's cupule and envelope (pericarp) and the female drops her egg into a small depression in the cap of the cotyledon or directly on the cotyledon. The larva is close to its source of food.

Laying periods

The acorn weevil lays its eggs between early July and mid-September, with a peak between the 3rd and 4th week of July. There is then a laying interruption of one week.

Weevil larvae

Generally speaking, the larva hatches when the acorn falls to the ground. It may happen earlier, but that is rare. Once the acorn has hit the ground, the larva hatches a few days later.
Despite studies, scientists have not been able to establish a reliable indicator as to where the larvae exit. The larva is large as compared to the diameter of the exit hole. The larva burrows into the soil, into a pupation chamber 5 to 10 cm deep. It is vulnerable to all kinds of predators, including predator insects in the soil, such as rove beetles.

The life of the adult weevil

The adult life of a weevil is essentially dedicated to reproduction. Its life expectancy is about 3 weeks. The acorn weevil works by day. During the laying period, there may be up to a thousand adults on one oak. The adult flies easily from one oak to another in search of a partner. Adults eat very, very little. They nibble on leaves for hydration, especially females while their oocytes mature. We do not know if a female who has laid can go lay on another acorn. Adult weevils vary greatly in size. All depends on the quantity of food at the larva's disposal before metamorphosing into a complete insect.

The weevil's predators

Hymenoptera such as solitary wasps of the genus *Emenes* and *Odynerus* feed on weevils. Insectivorous birds may also consume them.

THE SQUIRREL

Diet

The squirrel's activity fluctuates according to daylight, temperature, snow, wind intensity and the amount of food available. Most of its activity is related to food.
Its diet is essentially plant-based: conifer seeds, dried fruit, berries, mushrooms, young shoots, buds, bark. It may also consume birds' eggs, larvae, and insect chrysalises. It stocks provisions for the winter in small hidey holes or under bark.

In the winter, the squirrel is an inveterate daytime creature, with a peak of activity in the morning after sunrise. Summer and spring, it also activates late in the afternoon. It does not hibernate but may remain sheltered 18 to 19 hours when the weather is bad. Time passed under shelter allows it to thermo-regulate its organism. During periods of heavy winds or bad storms, it never leaves its nest. Likewise, when the weather is fine, il it remains in its nest to avoid the hottest hours.

Nest

The squirrel builds several nests depending on the purpose they will serve, and to escape predators. One will be used in the winter or to raise their young. It is often built at the top of a tree trunk. It may

measure 50 cm in diameter. Its exterior may be composed of leaves and small branches, and its interior of moss and grass.

The squirrel is not very sociable. But during mating season, the males rejoin the female's territory to mate. After coupling, they return to their own territory.
They are not territorial beings. Several squirrels' territories often overlap.

Reproduction
On the average, the female has 2 litters of 5 to 7 young per year. The first in February-March, and the second between May and August. Gestation lasts 38 to 39 days. Baby squirrels are born blind and naked. At birth, their ears have not yet developed and lie flat against their heads. They open their eyes when 30 days old. They then become more active, clean themselves and scamper around the nest. They first leave the nest at 45 days. They then become capable of a more consistent diet. They become completely independent at 8 to 10 weeks, although they remain close to their mothers for a short time while she teaches them to forage for food.
They themselves can reproduce at the age of one.
Mortality rates for the young are very high due to birds of prey and some mammals, but also to collisions with automobiles. Barely 1 out of 4 survives longer than one year.

THE EURASIAN JAY

There is something special about the jay's flight. It flaps its wide and roundish wings slowly or fast. Its flight is not rapid. Out in the open, it looks clumsy and ready to head for the nearest tree. On the other hand, it feels more at ease in forests, where it adroitly moves from branch to branch, at times via short flights, and at times by great leaps from one branch to another.
On the ground it moves with graceless leaps.
It always stays under cover and close to the trees.
It is restless, shrill, and attentive to whatever is going on around it. It is mistrustful, shy, and readily demonstrates its disquiet with raucous drawn-out cries.
They live in small groups most of the year but practice some social distancing.
In the spring, couples that have formed keep their distance.
In the autumn, they may gather in large flocks before having to migrate.

The jay and acorns
The oak provides at least one half its subsistence. So long as the acorns remain attached to the tree, it picks them. Later it looks for those that have dropped to the ground.

It stores a few in its digestive track and buccal cavity before flying to a peaceful spot to disgorge them, peel them and consume some.

In the autumn, a jay can transport huge quantities.
A German ornithologist has observed that in 4 weeks roughly 65 jays transported 300 000 acorns. They travelled between 2 and 4 km. Their comings and goings began at about 6:30 – 7 am and stopped toward 6pm.

The number of acorns available has a great influence on the jay's wanderings. They sojourn longest where they are most abundant.

Besides acorns, jays consume fruit and wild berries, or beetles such as June bugs and ground beetles. They are opportunists and will even hunt spiders and small rodents.

The jay's song
The jay's cries are unpleasant when alarmed, but it is also a fine imitator of other birds.
Once jays have formed a couple and built their nest, they remain silent until their offspring become independent.

The nest

It is built in April by both the male and female. It may be nestled on lateral shoots against a trunk, in a crotch of ivy or in a large cavity. It looks like a kind of bowl, made of roots, rootlets, and grass, and poised on a base of dry branches. It is a flat, smallish nest.

Eggs are laid (an average of 5 or 6 eggs) at the end of April or early May, most often when leaves have sufficiently grown to conceal the nest.

The female remains on the edge of the nest once the first egg has been laid. In the case of a disturbance during incubation, the brood is abandoned.

The female incubates alone.

Young jays' diet

Principally caterpillars, and to a lesser extent beetles and spiders.

In small quantities, acorns and galls.

According to an experiment carried out in Spain, the jay prefers the largest acorns.

The number of acorns transported is greater in winter than in summer and spring.

First, the jay determines visually which acorn is to be transported, whether by ingesting it or carrying it in its beak.

Then it tests (probably by applying pressure) whether the acorn is parasitized or has already germinated.

When the jay transports only one or two acorns, it carries off large ones.

When it transports more, it selects smaller acorns.

The acorn is always carried in the beak when there is the only one, or when it is the last acorn carried after multiple transports. The jay will try to swallow it, but if that is impossible, it will store it in its beak.

The size of the acorn will determine the means of transport. It transports acorns in its throat when they are small (1,.47 cm average width) and in its beak when they are larger (1.72 cm average width).

Enemies of the jay: The tawny owl for both adults and the young, hawks and even more so northern goshawks.

Source: Not only size matters: Acorn selection by the European Jay
Josep Pons, Juli G. Pausas
CEAM Fundacion Centro de Estudios Ambientales del Mediterraneo, Spain

THE TAWNY OWL

Reproduction

The male tawny owl leaves on territorial flights to mark its territory, while the female chooses a cavity for her nest. Aggressive behavior begins in October-November. Then after marking their territory and choosing the site of their nest, the two partners frequently sleep together.

The male brings the female food. A few courtship rituals show him close to his partner, swaying back and forth, but also bowing up and down. He first lifts one wing, then the other, and eventually both together.

During other mating rituals, the male swells his white bib, making him appear almost round. A few soft growls can be heard. It clacks its wings and pursues the female, who also puffs out her plumage and vibrates her feathers.

The tendency is to lay eggs very early, before the vernal equinox and in mid-winter, if feeding conditions allow. That no doubt has to do with their omnivorous diet and the duration of the reproductive cycle that lasts five months.

The female lays 2 to 6 eggs, sometimes only one. She incubates alone for 28-30 days, during which the male feeds her. The nestlings are covered in white fleece. The female sits on them for the first two weeks. They grow feathers 32-37 days after birth, but often abandon the nest earlier to settle on nearby

branches.
They become independent three months later and can reproduce at the age of one or two years.

The tawny owl is habitually monogamous, and couples remain together for life. They stay within their own territory, whereas youngsters scatter as autumn comes to an end.

Cries and song

The tawny owl has a vast repertoire of cries, with some noticeable variations according to gender. It emits a long quivering hoot, during which weak monosyllables alternate with short pauses. It ends on a long and pleasant tremolo that decreases in pitch.
During its mating dances, it warbles long trills, but also moans and caws softly on contact. A “shrill kee-wick” is more usually heard in spring and summer, when the bird is excited or feeling aggressive.

Diet

The tawny owl feeds principally on small mammals such as mice, treeshrews, and voles, but also on critters the size of a squirrel or young rabbit. They also consume small birds up to the size of a pigeon, amphibians, reptiles, worms, snails, and insects according to location and availability.
The tawny owl hunts at night, from dusk to dawn, but occasionally by day as well. It usually stalks its prey from atop a perch and localizes it by ear. It effects short flights and returns to the same place. It drops on its prey and opens it wings on impact to cover and strike the prey.
When it hunts over open spaces, it flies slowly, performs a few glissades, hovers, and stalks its prey, zigzagging aloft.
At times it may catch fish when flying over bodies of water and can capture insects and bats when in flight.
It consumes its prey on an elevated perch. Like other Strigidae, the tawny owl regurgitates clumps of undigested bones, teeth, fur, and feathers.

Source : The Handbook of Bird Identification for Europe and the Western Palearctic, Corvidae
Mark Beaman, Steve Madge - C.Helm

CO-DIRECTOR
LAURENT CHARBONNIER

A recognized specialist in animal films for more than 30 years, Laurent CHARBONNIER has obtained numerous prizes at various French and international film festivals. That is the role, or better yet vocation, that he has been carrying out all his life, following the bent of his early teenage passions.

Photography classes, prior to film studies: His first approach to images was via photography, working the classic genres: portraits, studio photos, still lifes, industrial photography, etc.
But photography struck him as being too instantaneous, too unitary, so he turned to film: shooting a frame, thinking about the next one, using those frames in the edit, thinking about the plot, the screenplay.
Then imagining a soundtrack, music, commentary: the whole rich complexity of a film!

His first films: Laurent began to film at the age of 20, at first with a rented camera, and then with his own: with no money, producer, or broadcaster … In 1981 Marlyse de la Grange bought his first film *La plaine aux busards* for her program *Les animaux du Monde*

As producer, director or cinematographer, Laurent CHARBONNIER has made more than sixty wildlife documentaries and taken part in camera work for feature films such as:
THE CHILDREN OF THE MARSHLAND by Jean BECKER, **L'ENFANT DES NEIGES, THE LAST TRAPPER**, **LOUP, and BELLE et SEBASTIEN** by Nicolas VANIER, **WINGED MIGRATIONS,** and **OCEANS** by Jacques PERRIN, **THE FIELD OF ENCHANTMENT** by Marie PERENOU and Claude NURIDSANI.
He has received numerous awards as well as a *César nomination* for his first feature-length film, **ANIMALS IN LOVE.**

FILMOGRAPHY CINEMA FEATURES

2017-2022	**HEART OF OAK** by Laurent Charbonnier and Michel Seydoux
2019	**CHAMBORD** by Laurent Charbonnier
2005 - 2007	**ANIMALS IN LOVE** by Laurent Charbonnier

WILDLIFE IMAGES FOR CINEMA

2013-2014	**SEASONS** by Jacques Perrin and Jacques Cluzaud
2012-2013	**BELLE AND SEBASTIAN** by Nicolas Vanier
2009	**THE FIELD OF ENCHANTMENT** by Claude Nuridsany and Marie Perennou
2008	**LOUP** by Nicolas Vanier
2008	**OCEANS** by Jacques Perrin and Jacques Cluzaud
2003	**THE LAST TRAPPER** by Nicolas Vanier
1999 - 2002	**WINGED MIGRATION** by Jacques Perrin, Jacques Cluzaud, and Michel Debats
1998	**THE CHILDREN OF THE MARSHLAND** by Jean Becker
1994	**L'ENFANT DES NEIGES** (35mm) by Nicolas Vanier

PRODUCER, AUTHOR, AND CO-DIRECTOR
MICHEL SEYDOUX

Michel SEYDOUX began his career as assistant to the President of the Central Organization of Youth Camps and Activities (OCCAJ) from 1968 to 1970.
In 1971, he founded Caméra One, the feature film production company that he manages.
A former president of Air Littoral Holding, he was also President of the football club Losc Lille until January 2017.
He is currently the chairman of Gaumont and a Member of the executive board at Pathé.
HEART OF OAK, which he co-directed with Laurent Charbonnier, is his first FEATURE FILM AS DIRECTOR.

FILMOGRAPHY AS A PRODUCER

2022 **HEART OF OAK** by Michel Seydoux and Laurent Charbonnier

2019 **LIVING AND KNOWING YOU'RE ALIVE** by Alain Cavalier
2019 Cannes Festival Official Selection – Special screeenings

2017 **SIX PORTRAITS XL** by Alain Cavalier
N°1 Jacquotte - N°2 Bernard – N°3 Philippe – N°4 Daniel – N°5 Guillaume – N°6 Léon

2016 **WITH OPEN ARMS** de Philippe de Chauveron

2015 **LE CARAVAGE** by Alain Cavalier
THE SENSE OF WONDER d'Eric Besnard

2014 **LE PARADIS** by Alain Cavalier

2013 **JODOROWSKY'S DUNE** by Frank Pavich
« Quinzaine des réalisateurs » Cannes 2013
Part of the official selection of Telluride, Toronto, Los Angeles, Munich, Londres, Tokyo, Brighton Festivals - 2013
Copenhague Documentary Film Festival Official Selection – 2013
Jury Special Mention and Audience Award Festival Sitges – 2013
Best Documentary and Audience Award Fantastic Fest d'Austin - 2013
Helsinki Audience Award Festival Night Visions – 2013
Grand Prize and Audience Award Utopiales – 2013

LA DANZA DE LA REALIDAD by Alejandro Jodorowsky
« Quinzaine des réalisateurs » Cannes 2013
Saint Germain Award of the best foreign feature – 2014

2011 **PATER** by Alain Cavalier
2011 Official Selection Cannes Festival

2009 **IRÈNE** by Alain Cavalier
2009 Official selection « Un Certain Regard » Cannes Festival

2008 **LEAVING** by Catherine CORSINI

2006 **AMBITIOUS** by Catherine Corsini
2006 Rom Film Festival Official Selection
2006 Alpes D'huez Jury Special Mention and interpretation price for Karine Viard

2005 **LE FILMEUR** by Alain Cavalier
2005 Official selection « Un Certain Regard » Cannes Festival- Intimity Price
2006 Rotterdam Film Festival Official Selection
Documentary Etoile d'Or (2006)

2002 **RENÉ** by Alain Cavalier

1999 **THE BARBER OF SIBERIA** by Nikita Mikhalkov
1999 Cannes Festival Official Selection « Out of competition »

BEAUTIFUL by Gabriel Aghion

1998 **NOTES OF LOVE** by Mimmo Calopresti
THE LAND GIRLS by David Leland
FOLLE D'ELLE by Jérôme Cornuau

1997 **SAME OLD SONG** by Alain Resnais
Louis Delluc Award (1997)
Méliès Award (1997)
1998 Berlin Film Festival Silver Bear
7 César (1998), of which best feature

1996 **PASSAGE A L'ACTE** by Francis Girod

1994 **BURNT BY SUN** by Nikita Mikhalkov
1994 Cannes Festival Jury Prize and Universal Jury Prize
Oscar Best Foreign Feature (USA 1995)

ANNA by Nikita Mikhalkov (1994)

1993 **SMOKING / NO SMOKING** by Alain Resnais
Louis Delluc Award (1993)
Méliès Award (1993)`
1994 Berlin Film Festival Silver Bear
5 César (1994), of which best feature

1992 **TOXIC AFFAIR** by Philomène Esposito
1993 Cannes Festival Official Selection « Out of competition »

1991 **URGA** by Nikita Mikhalkov
1991 Venice Film Festival, Gold Lion
1992 Cesar Nomination for best feature
1992 Oscar Nomination for best foreign feature
1993 Golden Globe Awards nomination for best feature in a foreign language
1993 Berlin Felix Festival European Film of the year

PROSPERO'S BOOKS by Peter Greenaway
1991 Netherland Festival Best Feature
1991 Cannes Festival Official Selection « Out of competition »
1992 London Film Critics Award for best director
1992 Warsaw Festival Public Award

1990 **NO FEAR, NO DIE by** Claire Denis

1989 **CYRANO DE BERGERAC** by Jean-Paul Rappeneau
1990 Cannes Film Festival Interpretation Prize (Gerard Depardieu)
1991 Golden Globe Award for best foreign feature
1990 Cinema National Academy Award to Jean-Paul Rappeneau
5 Oscar Nominations (1991), of which best foreign feature
10 César (1991), of which best feature
4 Bafta Awards at the 1992 British Academy Awards

1987 **A MAN IN LOVE** by Diane Kurys
1987 Cannes Festival Official Selection

HOTEL DE FRANCE by Patrice Chéreau

HOW GOOD THE WHITES ARE by Marco Ferreri

1986 **TWIST AGAIN A MOSCOU** by Jean-Marie Poiré

1980 **HOUSTON TEXAS** by François Reichenbach

1979 **DON GIOVANNI** by Joseph Losey
2 César (1980)

1978 **LE BEAUJOLAIS NOUVEAU EST ARRIVE** by Jean-Luc Voulfow

1977 **L'EXERCICE DU POUVOIR** by Philippe GALLAND
SHADOW OF THE CASTLES by Daniel Duval

1976 **BY THE TENNIS COURTS** by Madeleine Hartmann
F. AS IN FAIRBANKS by Maurice Dugowson

1974 **LILY AIME MOI** by Maurice Dugowson

1973 **VAUDOU** by Jean-Luc Magneron

THE AUTHOR
MICHEL FESSLER

Michel FESSLER has worked as screenwriter and co-screenwriter on French and international feature films, and on animated films as well. Three films on which he worked were Oscar nominees : FARINELLI, RIDICULE and MARCH OF THE PENGUINS. The latter won the Oscar for best documentary.

FILMOGRAPHY

2022 **HEART OF OAK** by Laurent Charbonnier and Michel Seydoux

2021 **LITTLE NICHOLAS' TREASURE** by Benjamin Mass and Amandine Fredon

2020 **THE WAY TO HAPPINESS** by Nicolas Steil
Based on Henri Henri Roanne-Rosensblatt's book « Birnbaum's Cinema! »

2017 **THE LADY IN THE PORTRAIT** by Charles de Meaux

2015 **UN JUIF POUR L'EXEMPLE** by Jacob Berger
After Jacques Chessex's eponymous novel

2014 **BORN** by Claudio Zulian
LAND OF BEARS by Guillaume Vincent
AFRICAN SAFARI 3D by Ben Stassen

2012 **MA BONNE ÉTOILE** by Anne Fassio

2008 **THE SEA WALL** by Rithy Panh
AO, LE DERNIER NÉANDERTAL by Jacques Malaterre

2005 **SERKO** by Joël Farges

2004 **MAN TO MAN** by Régis Wargnier
MARCH OF THE PENGUINS by Luc Jacquet

2002 **L'ENFANT QUI VOULAIT ÊTRE UN OURS** by Jannick Astrup (co-scénariste)
SOUTH OF THE CLOUDS by Jean-François Amiguet

2001 **T'CHOUPI** by Jean-Luc François
FROM HEAVEN by Eric Guirado

1998 **HANUMAN** by Frédéric Fougea

1995 **RIDICULE** by Patrice Leconte

1994 **FARINELLI : IL CASTRATO** by Gérard Corbiau

1991 **L'ANNÉE DE L'ÉVEIL** by Gérard Corbiau
ON GUARD by Yannick Bellon

LINE PRODUCER
BARTHÉLEMY FOUGEA

Producer and line producer of documentaries and docufictions since 1987, Barthélemy Fougea has produced films on international subjects having to do with discovery, human adventure, travel, and nature through the double prism of science and culture. All his projects have been developed with a transmedia dynamic in mind. He is a producer and managing director at WINDS.

SELECTIVE FILMOGRAPHY (CINEMA AND TV)

2022 **HEART OF OAK** by Laurent Charbonnier and Michel Seydoux

2019/2020 **PROFS DU BOUT DU MONDE** by Emilie Therond

2015/2018 **ON THE WAY TO SCHOOLS**
Documentary collection telling the incredible paths of students in India, Nepal, Mali, Mali, Kirghizstan, Madagascar, Vietnam, West Bank, Malaysia, Mexico, Siberia, Philippines, China...

2014 **LA NUIT DES ÉLEPHANTS** by Thierry Machado
3rd best audience Prime Time 2014 on FRANCE 2.

PAN ! NOTRE ODYSSÉE MUSICALE
Docu-drama about the exceptional human adventure of the Pan, the only percussion instrument invented in the 20th century, born in Trinidad and Tobago after World War II.
Special Jury Mention FEMI 2015 - Best Film at Reel World 2015

2013 **ON THE WAY TO SCHOOL by** Pascal Plisson
2014 Cesar Best Documentary Feature
Prix 2014 Henri Langlois Best Documentary 2014 Cinema Francophone Trophies
2014 Gold Panda (Chengdu, Chine)

FILM ORIGNAL SOUNDTRACK BY CYRILLE AUFORT

After winning several First Prizes at the Conservatoire National Supérieur de Musique in both Lyon and Paris, Cyrille AUFORT débuted composing for the theater, short subjects, and cartoons before tackling the cinema.

FOR CINEMA

2022	**HEART OF OAK** by Laurent CHARBONNIER and Michel SEYDOUX
2019	**LE LOUP D'OR DE BALOLE** by Chloé-Aïcha BORO
2018	**THE OTHER STORY** by Avi NESHER
2017	**KNOCK** by Lorraine LEVY
	MARCH OF THE PENGUINS by Luc JACQUET Documentary feature *70th Edition of the Emmy Awards - Best Original Score in the Film Miniseries or Special category.* *Hollywood Music in Media Awards 2018 - Best Original Score for Documentary*
2016	**PAST LIFE** by Avi NESHER
2015	**ICE AND THE SKY** by Luc JACQUET
	A PERFECT MAN by Yann GOSLAN
2014	**FARAFIN KO : UNE COUR ENTRE DEUX MONDES** by Vincent SCHMITT and Aïcha Boro LETERRIER Documentary feature
2012	**A ROYAL AFFAIR** by Nikolaj ARCEL Musique co-écrite avec Gabriel YARED *2012 Berlinale Silver Bear for Best Lead Actor and Best Screenplay* *9 awards at the 2013 Robert Awards including Best Original Score*
2011	**OMBLINE** by Stéphane CAZES 2012 *Cannes Junior Screen Award Winner*
2010	**WITH LOVE... FROM THE AGE OF REASON** by Yann SAMUELL
2009	**SPLICE** by Vincenzo NATALI **THE EMPIRE OF MID-SOUTH** by Jacques PERRIN and Éric DEROO
2006	**9A** by Reza REZAÏ **HELL** by Bruno CHICHE

3 QUESTIONS TO CYRILLE AUFORT

How did you first become involved in this project?
Musical supervisor Varda Kakon gave my name to Laurent Charbonnier and Michel Seydoux. I had already worked on some of Luc Jacquet's films, such as ICE AND THE SKY and THE MARCH OF THE PENGUINS. With HEART OF OAK, I was blown away by the story, whose central pivot is the tree as patriarch. I saw the very complete storyboard. I also knew that there would be no voice-over, and that the narration would greatly depend on sound.

When composing the original score for a film that focuses on nature, do you go back to the great classics, such as *Beethoven's Pastoral Symphony*, Vivaldi's Four Seasons, or Stravinsky's *Sacre du Printemps*?
I did in fact look at the musical language used by those great composers. I did for example take another listen to Bedrich Smetana's Ma Vlast. But those are grand, overarching musical gestures. For HEART OF OAK, I was much more interested in proximity; something far removed from those grand symphonic poems.

Composing the original score for an animal story must be much different than for a classic film, isn't it?
Since there is no dialogue or voice over, the music supports narration much more than usual. It can, for example, suggest things unseen on screen. Jean-Paul Rappeneau once said: *"when music is saying the same thing as what you see on screen, it's pointless"*. A scampering squirrel for example: without music, some things about the scene may escape audiences. In my case, I look at the film without music, like a long run-on edit, and I ask the director to explain to me in simple terms what he wants the audience to feel. And then I give him my own impressions. But one thing is sure: music is not there to "take up space". It needs to sound necessary.

How did you compose the soundtrack?
At first, I proposed three very different themes. The problem is the oak. Motionless. And unlike an actor it doesn't expresses a thing. So how do you communicate emotion? We opted for a theme to provide unity, first with a chorus and then with the orchestra. I wanted a majestic melody. But a theme susceptible to variations. I reused one part for example for a scene with field mice. I wanted a little hint of an "action". Something sneaky, surreptitious, like in a spy film. Composing a movie soundtrack means knowing how to tell when you're going too far. When there's more than you need, it loses its saliency. You must keep some distance. And manage to strike a balance between music and silence.

ORGINAL END CREDIT SONG

"ET TU RESTES"
Lyrics and music by Tim DUP
Interpreted by Tim DUP
Arrangements by Cyrille AUFORT

Available on all streaming platforms since December, 23rd

SINGER-SONGWRITER TIM DUP

Tim Dup is a French lyricist, composer, and performer. A socially committed artist, he has already accumulated several million views on You Tube and is especially sensitive to protecting biodiversity and concerned with its promotion. He composed this original song as the hymn of the Oak: a fun, musical way to prolong the journey the film proposes.

Discography
2021 - Album - *La course folle*
2020 - Album - *Qu'en restera-t-il ?*
2018 - Album - Reedition *Mélancolie heureuse*
2017 - Album - *Mélancolie heureuse*
2016 - EP - *Vers les ourses polaires*

TECHNICAL LIST

DIRECTORS	Laurent CHARBONNIER Michel SEYDOUX
SCRIPTWRITERS	Michel FESSLER Michel SEYDOUX
BASED ON AN ORIGINAL IDEA BY	Laurent CHARBONNIER
STORYBOARD	Vincent COPERET
IMAGE	Mathieu GIOMBINI
WILD SHOTS	Laurent CHARBONNIER
MACRO SHOTS	Samuel GUITON
SOUND	Martine TODISCO Samy BARDET Philippe PENOT Marc DOISNE
EDITING	Sylvie LAGER
SETTING	David FAIVRE
DIRECTOR ASSISTANT	Julien LE ROUX
TECHNICAL ADVISER	Guillaume POYET
PRODUCTION MANAGER	Philippe BAISADOULI
ORGINAL SOUNDTRACK COMPOSER	Cyrille AUFORT
ORIGINAL MUSIC SINGLE "ET TU RESTES"	Tim DUP
PRODUCERS	Barthelemy FOUGEA Michel SEYDOUX
COPRODUCTION	CAMERA ONE WINDS GAUMONT
IN PARTNERSHIP WITH	FONDATION DIDIER ET MARTINE PRIMAT JMC FAMILY OFFICE FONDATION FAMILLE LEMARCHAND, with the support of MERCATOR
WITH THE PARTICIPATION OF	the NATIONAL MUSEUM OF NATURAL HISTORY the NATIONAL OFFICE OF THE FORESTS and the UNESCO
WITH THE SUPPORT OF	the LOIRE ET CHER REGION the CREDIT MUTUEL and the GROUP CHRISTIAN MAHOUT and the MAÏF
FRANCE AND INTERNATIONAL DISTRIBUTION	GAUMONT