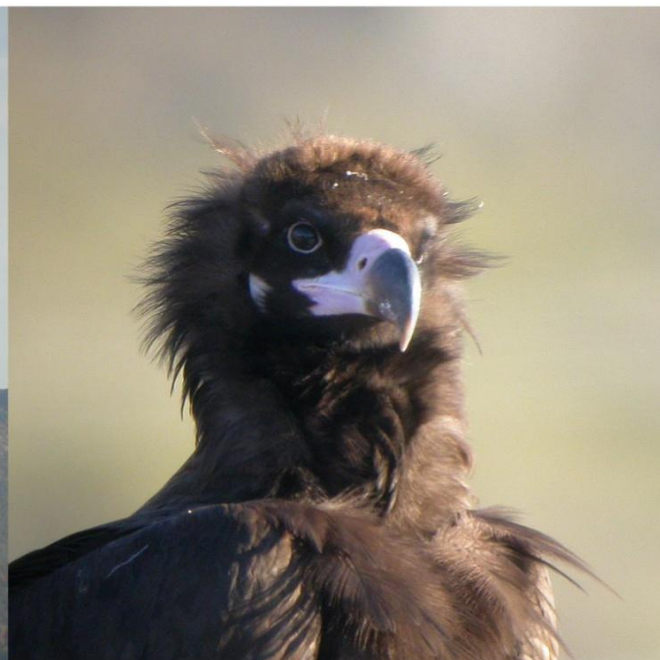
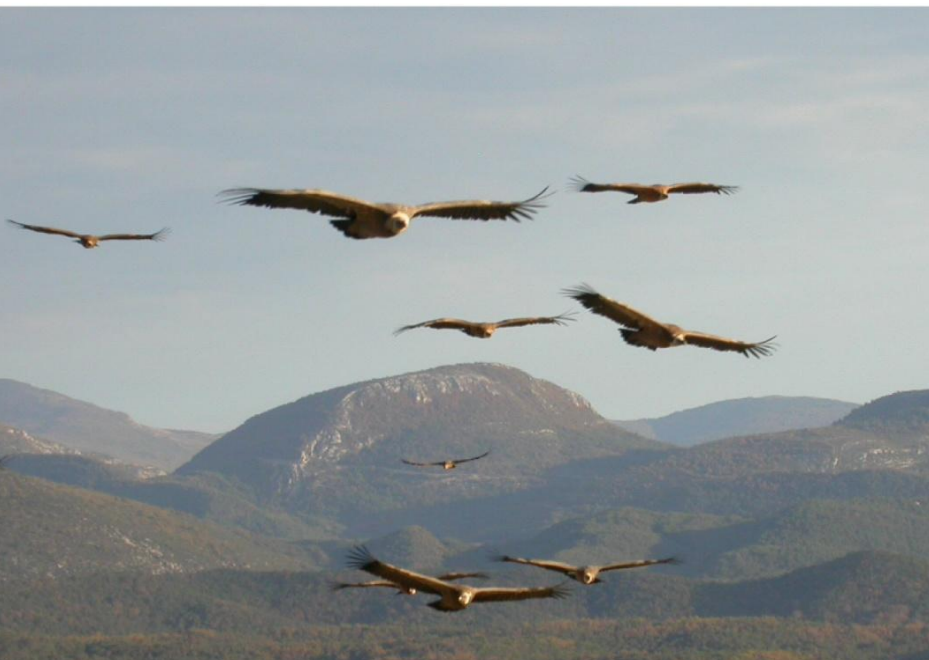




Reintroduction and conservation of vultures in the Verdon canyon

Monitoring report 2011



Région



Provence-Alpes-Côte d'Azur



PACA

January 2012

Au service de la biodiversité depuis 1912

1. Black Vulture (*Aegypius monachus*)

The reintroduction of the European Black Vulture in the Verdon began in 2005. This program is managed by LPO PACA in cooperation with the Black Vulture Conservation Foundation (BVCF), European zoos, Spanish rehabilitation centres, the associations "Vautours en Baronnies" and "Vautours en Haute-Provence" and "LPO Mission Rapaces". In 2011, this program benefited from a subsidy from the Region Provence-Alpes-Côte d'Azur, the Regional Direction of Environment (DREAL PACA) and the Department of the Alpes de Haute Provence.

This operation is part of the new National Action Plan in favour of the Black Vulture for 2011-2016 coordinated by DREAL Midi-Pyrénées. The global report of this plan for the 3 French concerned sites (Grands Causses, Baronnies and Verdon) was sent to the member of the pilot committee.

1.1. Breeding monitoring

On January 24th 2011, Marc Pastouret noticed two Black vultures together in a dale. The first one was perched on a pine and had no ring, and the second one was carrying branches on many occasions on a Scots Pine. This active bird was Jean (ring DOS). At 5:26 pm, we saw a mating confirming that Jean is definitely a male. The female is an exogenous bird (named Exo_1), who has been observed on the site since 27th April. Fortunately, she carried an easily distinguishable mark on her left wing: she has a naturally white feather in her coverts that could be seen in flight or when she is perched. These behaviours of a nesting couple continued until 27th February. The couple then disappeared from the area for no known reason.

They reappeared together on March 9th on the feeding station in the Baronnies (information: C Tessier & J Traversier) where they nested in April, but it was a failure. Jean and Exo_1 were back in Rougon by the beginning of June and were often seen together during quarries in Rougon.



The monitoring of this first pair, from the 24th of January to the 6th of March, represents 15 visits and 56 hours of surveillance.

The pair Jean et Exo1 (A Lacoste)

1.2. Releases results

	Black Vultures released in the Verdon				Exogenous Black Vultures			Total
	released	captured	dead	observed during the year	from Baronnies	from Causses	unmarked	
2004						1		1
2005	2		1	2	1			3
2006	2	1*		3	3			6
2007	3*			5	2	1	2 / 3	10 / 11
2008	5		1*	9	4		2 / 3	15 / 16
2009	4			11	4		2	17
2010	1		1	9	2	7	2	20
2011	2			7	3	4	3	17
2004-2011	18	1	3	18	13	11	10 / 12	45 / 47

* Wupper was released in 2006, then captured, released in 2007 and died in January 2008

Recuperation of news birds

On March 31st 2011, 4 news birds native to Spain (Wildlife Fauna Recovery Centre “Los Hornos”, Estremadura, Spain) were brought by Juan Sanchez, director of the BVCF, and were put in our aviaries. They were immatures: one male was born in 2009, and another male and two females were born in 2010. They will be released in autumn 2012. They joined “Nestor”, a young bird from the Causses and another injured bird who cannot be released. This one was transferred on the 15th of May to Mallorca, at the centre of the BVCF to become part of a pool of captive nesting birds.



Release in the aviary of the 4 Spanish Black Vultures (A Lacoste).

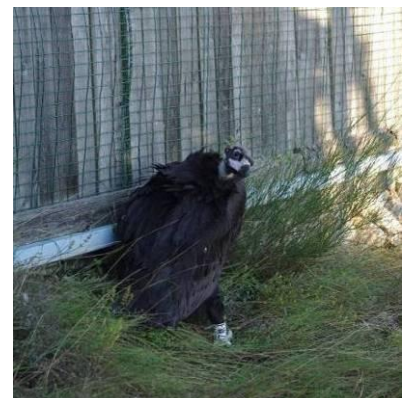
At the beginning of September, the LPO PACA collected a fledgling offered by the Burgers' Zoo of Arnhem (Netherlands). It was put in the aviary in Rougon. This bird was born on the 29th of May 2011. Blood sample revealed that it was a female; she was named “Burgers Zoo”.



Preparing “Burgers Zoo” at Arnhem and releasing in the aviary at Rougon (A Lacoste).

September 5th, a second chick offered by “le Grand Parc du Puy du Fou” (France) was brought by Christophe Gaborit to Rougon and joined “Burgers Zoo” in the aviary. “Rougon” is a male born on the 7th of June 2011.

Releasing of Rougon in the aviary (A Lacoste)



1.3. Individual monitoring

1.3.1. Black Vultures released in the Verdon

Release of November 15th 2011

BURGERS ZOO and ROUGON were released on the 15th of November. The aviary was opened early in the afternoon and a quarry was organized at the same time next to the cage. About 150 Griffon Vultures and 5 Black Vultures were present. Only BURGERS ZOO came out for half an hour to eat with the others at the feeding station and then went back in. They finally left the cages on the next day.



Burgers Zoo the 15th of November during the quarry (A Lacoste)

- BURGERS ZOO.



On November 16th, between 12:33pm and 1:15pm, she did 5 short flights around the cages.

At 1:58 pm, she managed to gain altitude. She soared into the air and went towards the Grand Canyon. We got a signal with the receiver until

2:35pm. Around 6 o'clock that night, from the "Route des crêtes", at the edge of the canyon, we had a signal from "le Mourre de Chanier", the highest point of the zone. Although we were back in the same place at 8 am on the next day, we had no more contact.

BURGERS ZOO was seen a week later in Camargue, Arles, Bouches du Rhône. Grégoire Massez saw her at 2.15pm on November 23rd over the Marais du Vigueirat "flying low above the water as if just taking off, then away S-SW direction harassed by Marsh Harriers and crows and last by a female Peregrine Falcon."

Later, Pierre Foulquier saw her again, further South: "Circling rather low in the sky. Flying above the beach and going down to disappear behind a dune (observed from the first-aid post of Piemanson's beach). No further observation after her disappearance."

Finally, around 3pm, André Blasco saw her for the last time "flying slowly further to the south, scolded by a seagull." No other observation occurred during the next days.

- ROUGON.



On November 16th, he rapidly lost altitude and was blocked beneath the cliffs below the aviaries, above the river Verdon during a few days. On Saturday 19th, helped by an eastern wind, he managed to gain altitude and to perch on a crest near "la Palud-sur-Verdon". The next

day, he got closed to the aviaries and gained altitude, and finally disappeared.

Like Burgers Zoo, Rougon reappeared a week later. On Sunday 27th November, Eric Barthélemy saw and photographed him in the Nerte's dale, East of Marseille, on the verge of a military camp. The next morning, he was sighted twice around Marseille. Around 9:30am, he flew over the semaphore of Callelongue (Frédéric Lussi). Later, Christophe Lauzier, Mathieu Imbert and Patrick Vidal saw ROUGON over the Pomègues' Island, a small island near the city. Around midday, he went back to the North towards the Estaque. These observations are the most recent.



Rougon November 27th in the Nerte's dale, Marseille (E Barthélemy) and the November 28th above Pomègues' Island (C Lauzier)

Previous releases, from 2005 to 2010

- **ARNHEM**, first Black Vulture released by hacking in 2005, is still in the area.
- **ALCYONE**, released on December 12nd 2007, is regularly observed on the site.
- **JEAN** was released by hacking on August 2nd 2008. He was present at the beginning of the year, in pair with the female Exo_1, until the 27th of February 2011. They nested in the Baronnies and returned to Verdon from the 3rd of June. Jean lost his bleached feathers.
- **SIRIUS** was observed at Organya in Cataluña on November 8th 2010. He was photographed on the feeding station in Baronnies (Vautours en Baronnies) since 20th to 26th of April 2011. Then, we saw him in Rougon on the 6th and 10th of May. The 9th of May, he was photographed in flight at Tourrettes sur Loup, Alpes Maritimes (T Corveler, K Morell). He was identified thanks to a bleached feather. The 10th and 11th of September, he was again seen in the Baronnies, and on the 13th in Saint Etienne de Tinée, Alpes Maritimes (J-C Piques) and on the 16th in Rougon. From 30th of September till 9th of November, he alternated Verdon and Baronnies. The last data of the year is the 11th of November. He was photographed at the Montagne de Ceüze, Hautes-Alpes (D Richier).
- **THÉCLA**. She was last observed on the 3rd October 2010 in the North of Denmark. As usual, Thécla surprised us again. She was present on the feeding station in the Baronnies (Drôme) on the 25th of March 2011. Then she disappeared once more.
- **STÉHÉLINE AND JASON** are nestling in the Baronnies' colony.

1.3.2. Exogenous Black Vultures

Ten exogenous Black Vultures visited the Grand Canyon during the year: three birds from the Baronnies (Valouse, Anjou and Condamine), four from the Causses (Malabar, Odysée, Occitan and Oran), the female Exo_1 and two others non-ringed. Most of them were seen between the end of March and June. However, Valouse, Anjou, and Exo_1 were more regular. Valouse was already present on the 21st of January, then on the 18th of February, and also from the 4th to the 31st of March, the 17th of June and the 12th of July.

Anjou was observed 33 times between the 31st of March and the end of December.
The female Exo_1 spent most of the time in pair with Jean.

1.3.3. Weekly presence table of Black Vultures of Verdon in 2011

The monitoring of Black Vultures is mainly realised during the quarries observations at the feeding station in Rougon. During this year, it allowed us to identify 15 different birds (338 datas).

	January				February				March				April				May				June				July				August				September				October				November				December							
Nom	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
ARNHEM																																																				
ALCYONE																																																				
JEAN																																																				
Exo_1																																																				
THECLA																																																				
SIRIUS																																																				
BURGERS ZOO																																																				
ROUGON																																																				
VALOUSE																																																				
ANJOU																																																				
CONDAMINE																																																				
MALABAR																																																				
OCCITAN																																																				
ODYSSEE																																																				
ORAN																																																				
exogenous_a																																																				
exogenous_b																																																				
TOTAL	4	5	4	4	4	4	4	4	2	3	2	2	5	2	2	3	2	5	8	5	1	4	3	7	1	1	4	1	4	3	2	1	5	1	2	1	3	5	2	2	3	3	2	0	2	7	5	0	4	1	4	1

1.3.4 Mortalities

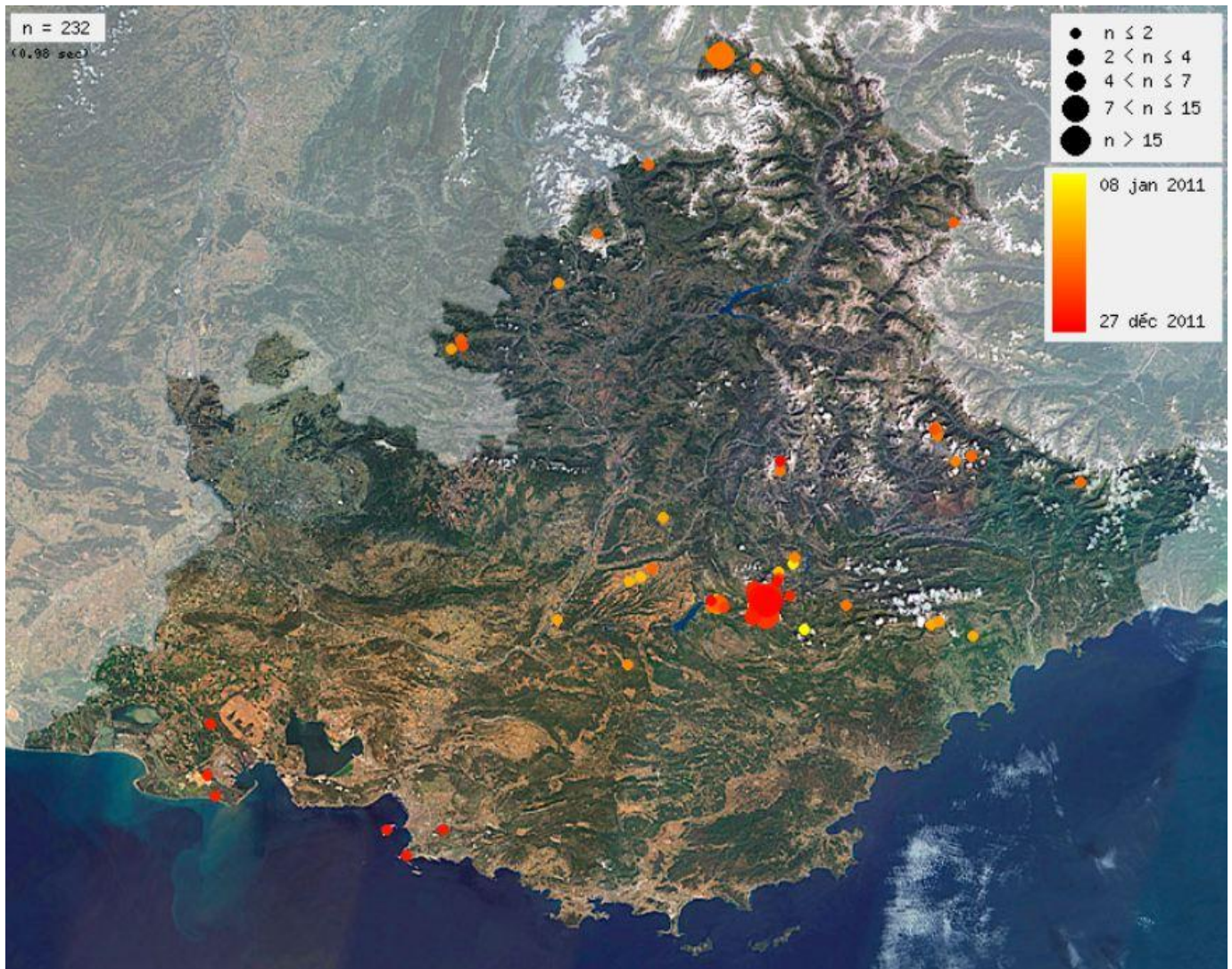
No Black Vultures have been found dead this year.

The 16th of February 2010, we found the carcass of Cyrano near the aviaries. Florence Buronfosse-Roque (CNITV: Centre National d'Informations Toxicologiques Vétérinaires) carried out a post-mortem on him on August 3rd 2011. It showed a very small heart (half normal size) with very thin walls and an anomaly with the valves (abnormal thickening).

Her conclusion was: "Animal showing cachexia and an obvious heart abnormality. Cachexia possibly originating from heart trouble."

1.2.4. Regional movements

The map below shows the Black vulture observations in PACA region in 2011. These data were collected through the web site database Faune-paca (www.faune-paca.org), of LPO PACA. These are observations from the Verdon, Mercantour and Pre-Alps of Grasse. It also shows sightings in the North of the region (Rosanais, Dévoluy, Ecrins), which are the result of the movement of birds from the Baronnies' colony. The 6 points around Camargue and Marseille correspond to the observations of Burgers Zoo and Rougon.



Sightings of Black Vulture in Provence Alpes Côte-d'Azur Region in 2011 (www.faune-paca.org)

2. Griffon Vulture (*Gyps fulvus*)

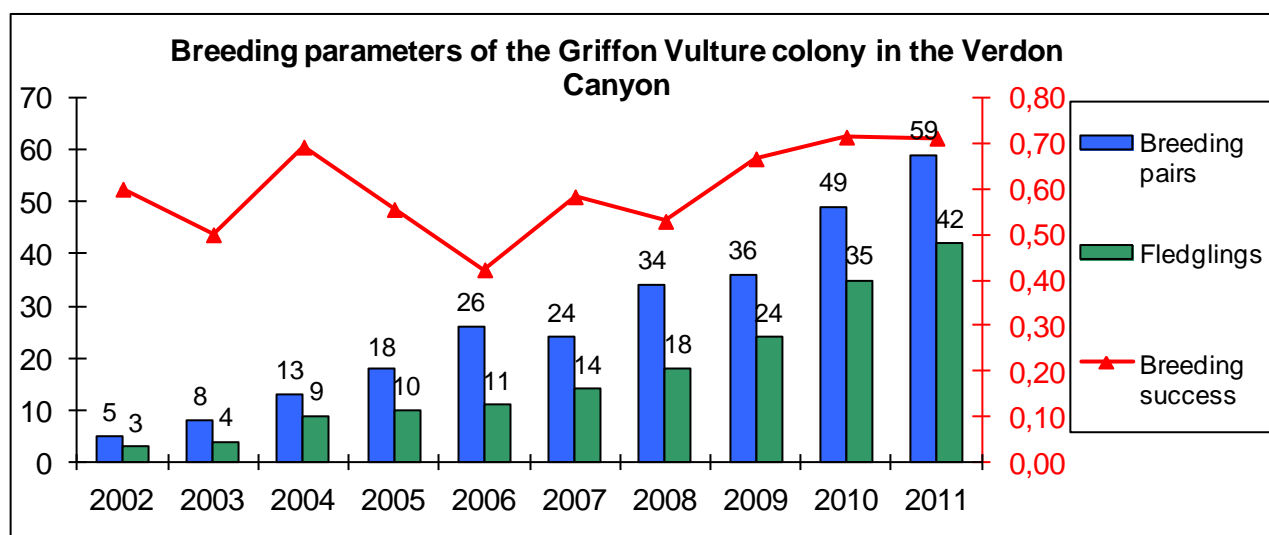
2.1. Breeding monitoring

The monitoring in 2011 allowed the identification of 59 breeding pairs. As every year, the number of breeding pairs increased compared to the previous years: 20% more eggs in 2011 than in 2010. Egg-laying is spread from the middle of January to the beginning of April. At least 8 breeding vultures were born in the colony: Vooutour (2002), Yèble (2004), Xénolite (2005), Xilidine (2005), Wanda (2006), Wadi (2006), Vespa (2007) and Vizir (2007). The colonization of the Var side of the Grand Canyon continues slowly with 6 breeding pairs and 4 fledglings.

42 fledglings took flight this year, that is 170 vultures born in the Grand Canyon since 2002. Eighteen of them were ringed in the nest, and 17 of them were seen in Rougon during the autumn.

Year	Breeding pairs (b)	Productive pairs (c)	Fledglings (d)	Breeding success (d/b)	Fledgling rate (d/c)
2002	5	3	3	0,60	1,00
2003	8	5	4	0,50	0,80
2004	13	10	9	0,69	0,90
2005	18	14	10	0,56	0,71
2006	26	17	11	0,42	0,65
2007	24	19	14	0,58	0,74
2008	34	26	18	0,53	0,69
2009	36	28	24	0,67	0,86
2010	49	42	35	0,71	0,83
2011	59	49	42	0,71	0,86

This year, the breeding success was 0.71. This is the highest value (together with the breeding success of the previous year) since 2002. This result is also higher than the average value of this species, (0,60).



2.2. Colony strength

Counting the vultures during the quarries on the main feeding ground in Rougon is the most reliable way of studying the demography of the colony. In January, the average number of vultures observed per quarries was around 150. In February this number decreased to 120 birds per quarry, marking the beginning of the breeding cycle. In April, the number of birds observed progressively rose up to reach 140 birds per quarry in the beginning of the month of May. The record was reached the 13th of May when 200 Griffon Vultures were observed. This number is virtually the same two weeks later with 190 birds. Between July and October, the strengths were relatively small. We had about 100 birds per quarry. During November, the number of vultures increased little by little to reach around 200 birds for many quarries. The maximum we counted was reached on December 20st with 215 vultures on the feeding ground.

2.3. Origin and exogenous vultures

Quarries monitoring in Rougon allowed us to read 4152 rings (Darvic and metal) and to identify 194 Griffon Vultures in 2011 (ring reading ratio=38%, n=91 quarries). A total of 373 vultures have been identified during 11 years (34907 rings identified).

For the first time, a bird native to Portugal could be identified thanks to his wing marks. There were 2 Italian birds too. The first one was born at the Salzburg's Zoo (Austria) in 2009 but was released on the 12th of June 2011 in Italia (region of Friuli). The second comes from the reintroduction program in the Pollino's National Park between Calabria and Basilicata.

	Verdon (released)	Verdon (born in nature)	Baronnies	Diois	Causses	Pyrenees	Spain	Italy	Croatia	Portu gal	Total
2011	38	81	19	4	12	1	34	2	1	1	193
Total	91	105	51	30	39	6	95	7	5	1	425

A new species in the PACA Region.

On Tuesday February 22nd 2011, a vulture with a "scale-like" plumage slipped in between the Griffon vultures. Actually, it is a Rueppell's Griffon (*Gyps rueppellii*). This African species is rarely observed in France within the others colonies (Baronnies and Causses). It was the first time in PACA. This bird had no ring and was possibly a wild specimen. This vulture was also seen two other times: on 4th and 31st of March in the Verdon and in the others alpiners' colonies during this period (Baronnies and Diois-Vercors).

Rueppell's Griffon (S Henriquet)

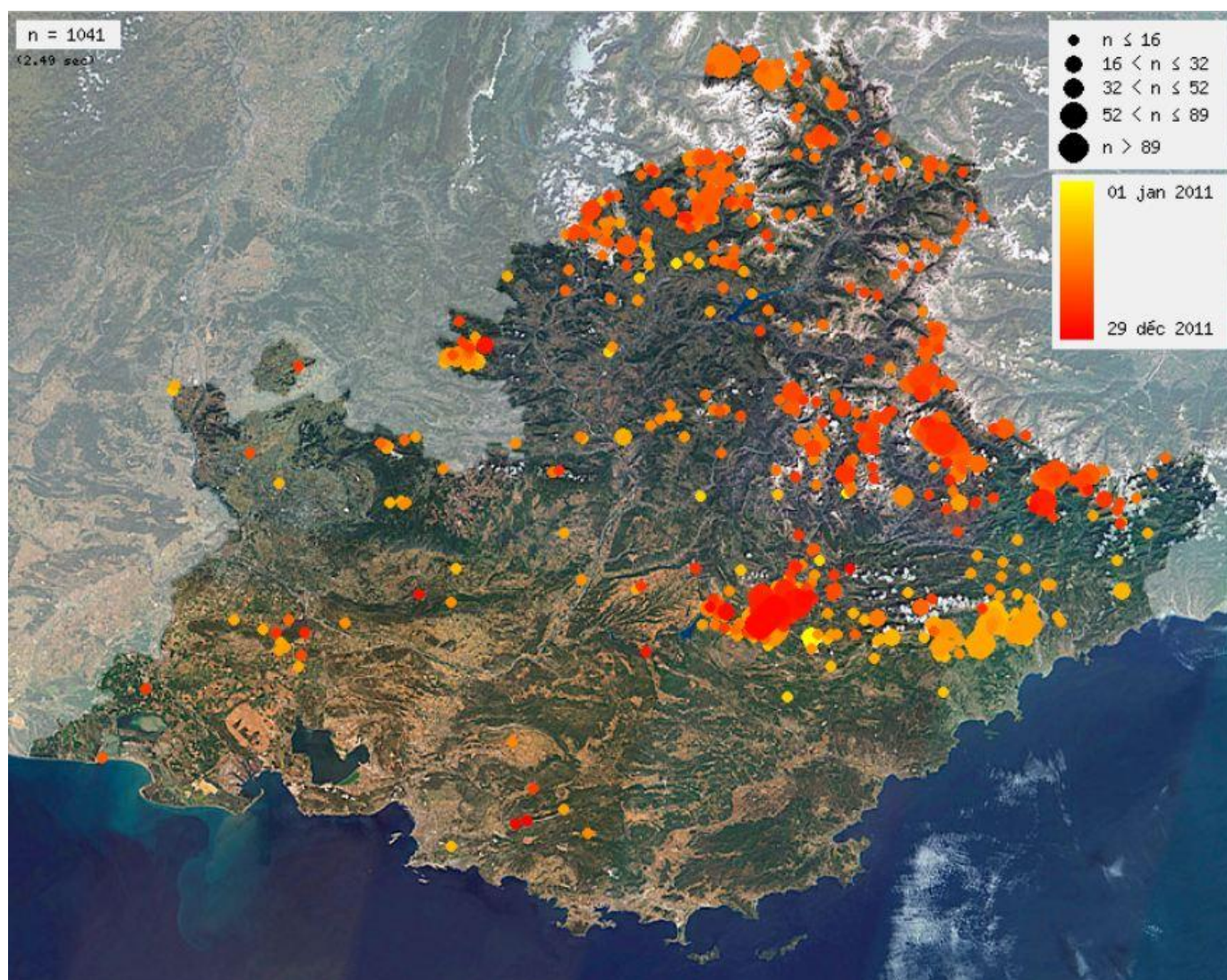


2.4. Movements and vital area

1041 observations of Griffon Vulture have been collected through the web site Faune-paca (www.faune-paca.org), run by LPO PACA. These data revealed the continuum between the Eastern part of the vital domain of the Baronnies' colony in the Hautes-Alpes and that of the Verdon's colony (about 600 000 Ha) astride the Alpes de Haute-Provence, Var and Alpes-Maritimes.

On March 19th, the first movements of vultures were observed in the pre-alps of Grasse and behind Vence, with 2 birds in Coursegoules, Alpes-Maritimes (M Belia). These movements continued during April and May. The largest observations were made on April 7th: 42 vultures in Coursegoules (P Ferry), 22 on April 22nd during a wild quarry in Escragnolles, Alpes-Maritimes (G Tremellat), 23 on May 21st in Saint Vallier de Thiey, Alpes-Maritimes (C Baudoin).

In June, several observations in the Mercantour attested that Griffon Vultures follow the flocks of sheep in the mountain pastures. All through the summer, the vultures stayed around in the Mercantour and the Ecrins. Several groups observed attested this presence: 40 vultures on July 3rd in Saint Etienne en Dévoluy, Hautes-Alpes (E Dupland), 60 on July 16th in Saint Etienne de Tinée, Alpes-Maritimes (G Autran). This frequenting continued until the beginning of October, but in smaller flocks. It is important to notice a strong presence of vultures further to the death of 600 sheep due to a thunderstorm near the Lautaret pass, Hautes-Alpes (JP Choisy, C Couloumy, Y Zabardi), where more than 400 vultures were counted.



Sightings of Griffon Vulture in Provence Alpes Côte-d'Azur Region in 2011 (www.faune-paca.org)

Even though we collected 50% more sightings than the year before, the map for 2011 is almost the same than in 2010 concerning the distribution. It seems the vultures visit widely the region during the summer and most of mountain summer pastures are prospected.

The first griffon vultures' counting was organised together with Mercantour National Park and the LPO PACA Verdon branch in August 2010. This operation was renewed and extended to all the Southern Alps in September 2010. It appears the most favourable period was in August.

This year, the counting took place on August 16th 2011 at close of day in the French Alps and in Ardèche. It was a success: the entirety of the organizations concerned were participating: Mercantour National Park, Ecrins and Vanoise National Parks, Vercors Regional and Natural Park, LPO PACA, LPO Ardèche, LPO Savoie, LPO Haute-Savoie, Vautours en Baronnies. All the breeding colonies and the known roosts were counted. However, some territories were under-examined, such as the Queyras and the Dévoluy. In total, between 1162 and 1202 vultures were counted, 523 in the colonies and between 642 and 682 in the mountain summer pastures.

Concerning the vital area of the Verdon's colony, 182 griffon vultures were counted in the gorges (a quarry was organized to concentrate the birds) and between 270 and 304 individuals in the Mercantour. An article summarizing the operation and future possibilities was published in the magazine "Vautours infos n°20" (<http://rapaces.lpo.fr/vautour-moine/sensibilisation>).

2.5. Mortality

During 2011, only one vulture died.

- The 29th of April, "Trex", ringed DOX, was found dead at the foot of an electric post in Mons (Var). This bird died from electrocution with the subtransmission line. This bird was born in 2009 in the Verdon's gorges, but he visited these latter rarely (viewed only 5 times in 2010). In 2011, he was seen the only and last time on the 22nd of April at the feeding station in Rougon.

"Trex", at the foot of the electric line (A Lacoste)



3. Egyptian vulture (*Neophron percnopterus*)

This year was an historic one for the Egyptian vulture. In spite of a late clutch, a fledgling was able to take his first flight from the cliffs of the Verdon Grand canyon. The last successful reproduction was in 1996 in the low gorges and there was no known reproduction in the Grand canyon.

The male of Egyptian vulture in flight, in Rougon (A Lacoste)

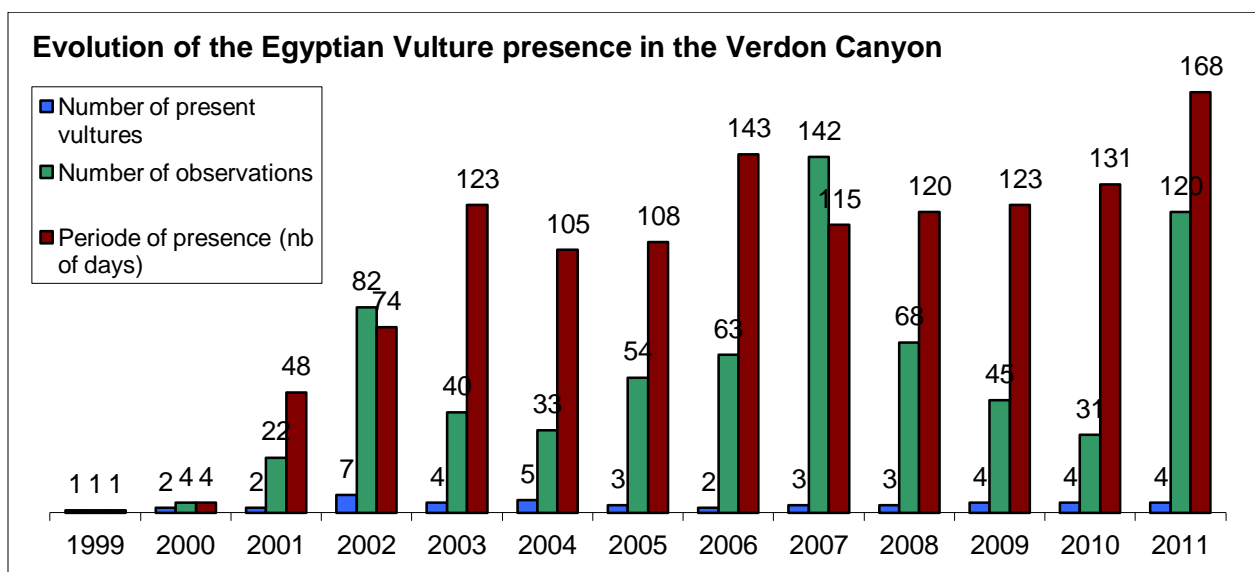


Here are noteworthy dates of the monitoring:

- 10th of April: first observation of an adult.
- 12nd of April and 6th of May: mating. After the first mating, we were able to identify the two birds: the female had no ring and lost the third primary of its left wing; the male had a metal ring on his right leg.
- From April 12nd to May 27th: the pair was seen on several occasions in a new cavity.
- April 27th: the egg-laying was noticed. The pair was occupying the cave they visited since they returned from migration.
- June 17th: another adult is present. The male chase him.
- June 5th: hatching.
- From 5th to 20th of July: feeding of 2 chicks.
- July 21st: only one chick fed (with the carcass of the second chick dead?).
- August 16th: partial reading of the male's metal ring. According to M Gallardo, this bird was ringed in the Gorges du Gardon in 2004.
- September 13th: last sight of an adult (the male) on the site.
- September 17th: last observation of the chick in the nest.
- September 22nd: the fledgling was perched on the cliff-top above the nest (picture opposite, S Henriquet).
- September 24th: last observation of the fledgling, in flight over the site.



To avoid any disturbance of the pair, decision was taken not to ring the chick.



Common actions for the 3 species of vulture

4. Natural quartering

Griffon and Black Vultures are necrophagous birds, which play a role of scavengers by eliminating ungulate corpses in the alpine meadows in Haute-Provence. Their presence is closely linked to Humans and to pastoralism. The feeding station and the aviaries are supplied by ovine and caprine corpses (breeding losses) collected directly from the breeders, and in a refrigerated container located in Saint-André-les-Alpes. The proportion collected directly from the breeders represents 77% of total.

This year, 554 ewes, 18 rams, 618 lambs or kids, and 58 goats were collected. Since 1999, more than 270 tonnes of corpses have been eliminated by these natural scavengers. The bones are burnt regularly.

In parallel, the 7 feeding stations have been provided by the breeders. The permits for these feeding stations have been renewed by the veterinary department.

Three other projects are now being studied with breeders from Castellane, Angles in the Alpes de Haute Provence and from Châteaufieux in the Var.

For the breeders who manage individual feeding stations, LPO negotiated a reduction of the quartering tax with "Interbev". LPO PACA provided the department breeders with the papers relevant to the breeders involved in the Verdon (list of addresses, maps of the stations, decrees for the opening of stations, or their renewal). Therefore, breeders who hold a feeding station benefit from a 60% exoneration of this tax.

5. Reducing anthropogenic mortality factors

5.1. Limiting the impact of subtransmission lines

The partnership charter between ERDF Méditerranée (Electricité Réseau Distribution France) and LPO PACA specify that “ERDF commits intervene quickly in case of electrocution or collision with an individual of a protected species”.

To reduce these mortality risks on subtransmission lines (20 kV), ERDF Méditerranée treated two sections in Castellane and la Palud sur Verdon in 2011.

Electricity pole provided with sheathing at the
Lèques' pass, Castellane
(M Lafont Coudouret ERDF)



“Firefly” markers were put on the lines to reduce the collisions risks, sheathings were put on voltage transformers. In addition roosts were added to avoid electrocutions.

These operations closed three years of securing work of subtransmission lines in the Verdon region. They permitted to secure the lines or stands known responsible for the electrocutions or collisions of vultures, as well as a section passing through a favourable habitat for the Black vulture nestling. If other death cases are discovered, ERDF will be immediately informed to plan a treatment of the relevant support.

5.2. Reducing poisoning risks

Each carcass of Black or Griffon vulture which is discovered is collected and stocked in a freezer. This year, the entirety of carcasses fetched since 2006 (1 carcass of Black Vulture and 8 of Griffon Vultures) were transferred to a the Centre National d'Informations Toxicologiques Vétérinaires next to Lyon to carry out an autopsy and to conduct toxicological analysis. They should confirm the reason of the death causes and possibly highlight any aggravating factors.

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