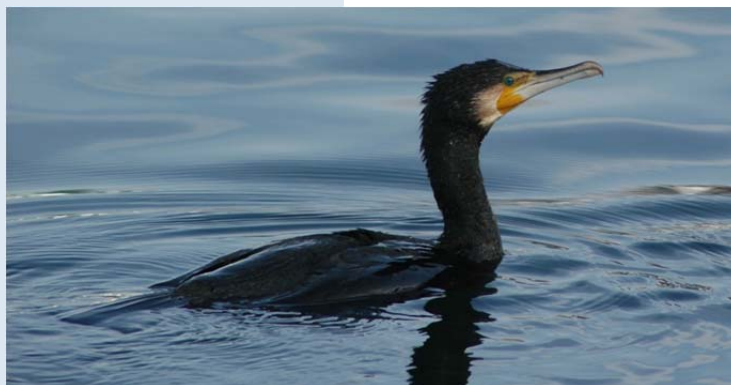


# Number and distribution of Great Cormorants *Phalacrocorax carbo* in Switzerland in January 2013

Verena Keller  
Claudia Müller



Western Palearctic census of wintering Cormorants 2013  
National report for Switzerland



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# Impressum

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Western Palearctic census of wintering Cormorants 2013, national report for Switzerland

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Great Cormorant, Flachsee Unterlunkhofen: Verena Keller

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## Summary

The IUCN/Wetlands International Cormorant Research Group organised a coordinated roost count of cormorants in January 2013, the second such count for the Western Palearctic after the one in 2003. This report presents the results for Switzerland, where the census was coordinated by the Swiss Ornithological Institute. In total, 2873 Great Cormorants *Phalacrocorax carbo* were counted in Switzerland, 3763 if the roosts across the borders to adjacent countries are included. Overall, 54 occupied roosts were found, 42 of which were on Swiss territory. The number of cormorants was smaller than in 2003, when a total of 4201 (5885 with roosts across the border) were recorded.

## Zusammenfassung

Die Arbeitsgruppe Kormoran von IUCN und Wetlands International organisierte im Januar 2013 eine koordinierte Schlafplatzzählung von Kormoranen, die zweite in der Westpaläarktis nach jener von 2003. Dieser Bericht präsentiert die Resultate für die Schweiz, wo die Zählung von der Schweizerischen Vogelwarte koordiniert wurde. Insgesamt wurden in der Schweiz 2873 Kormorane *Phalacrocorax carbo* gezählt, 3763 inklusive Schlafplätze unmittelbar jenseits der Landesgrenzen. Sie verteilten sich auf 54 Schlafplätze, wovon 42 auf Schweizer Territorium lagen. Die Anzahl Kormorane war kleiner als in 2003, als 4201 Kormorane (5885 inklusive ausländische Schlafplätze) gezählt wurden.

## Résumé

Le groupe de travail Cormorans de l'UICN et de Wetlands International a organisé, en janvier 2013, un recensement coordonné des Cormorans aux dortoirs; le deuxième dans le paléarctique occidental après celui de 2003. Le présent rapport donne les résultats pour la Suisse, où le recensement était coordonné par la Station ornithologique suisse. Au total, 2873 Grands Cormorans *Phalacrocorax carbo* ont été comptés en Suisse, 3763 si les dortoirs sur territoire limitrophe sont inclus. Ils étaient répartis sur 54 dortoirs, dont 42 sur territoire suisse. Le nombre de Cormorans était inférieur à celui de janvier 2003 où 4201 Cormorans avaient été comptés (5885 avec les dortoirs à l'étranger).

## Riassunto

Il gruppo di lavoro Cormorani dell'IUCN et di Wetlands International ha organizzato in gennaio 2013 un censimento coordinato di cormorani ai dormitori, il secondo nel Paleartico occidentale dopo quello del 2003. Questo rapporto presenta i risultati per la Svizzera, dove il conteggio è stato coordinato dalla Stazione ornitologica svizzera. In totale, 2873 cormorani *Phalacrocorax carbo* sono stati contati in Svizzera, 3763 se i dormitori oltre confine sono inclusi. I cormorani erano distribuiti su 54 dormitori, dei quali 42 su territorio svizzero. Gli effettivi erano inferiori a quelli del 2003, quando 4201 cormorani sono stati contati (5885 con i dormitori all'estero).

## 1. Introduction

The IUCN/Wetlands International Cormorant Research Group (CRG) has previously organised counts of Great Cormorants *Phalacrocorax carbo* in the Western Palearctic. The first coordinated winter count took place in 2003 (Van Eerden et al. 2011), the first count of breeding colonies in 2006 (Bregnballe et al. 2011). There continues to be considerable interest in Great Cormorants and their numbers in the Western Palearctic, not least because of the continuation of conflicts between Cormorants and fisheries. As a consequence, the European Commission has launched a new initiative called CorMan primarily aimed at organising counts of breeding and wintering Great Cormorants in the Western Palearctic in collaboration with the CRG and at creating an internet platform for the dissemination of information about Great Cormorant numbers, management and experiences relating to methods to reduce impacts of Great Cormorants<sup>1</sup>.

For these reasons, the European Commission 'Directorate-General for the Environment' (DG Environment) has asked the CRG to collaborate in organising counts of breeding colonies and of wintering Great Cormorants to update our knowledge of the abundance and distribution of Great Cormorants in the Western Palearctic both during breeding and winter. The Swiss Ornithological Institute was approached to act as national coordinators as in previous surveys. In 2012, a coordinated survey of breeding colonies was carried out, published in a national report (Keller & Müller 2012), with a summary in the European report (Keller & Müller 2013).

In Switzerland, the Swiss Ornithological Institute is responsible for waterbird monitoring and coordinated the roost counts in 2003 (Keller & Burkhardt 2003). In 2010, another report on the Swiss roost counts was published (Keller & Burkhardt 2010) following a call of the CRG for a second winter census in 2009, which was, however, not followed by enough countries to enable a continent-wide analysis. The current report presents the results of the census in January 2013.

## 2. Methods

In Switzerland a roost count scheme was running from 1995/96 to 2000/01. Since 2002/03 waterbird counters are asked to make a separate roost count in the evening on the days of the national waterbird census if there is a roost in their count sector. For the January census in 2013 waterbird counters were informed that the data would be used for the European census. The counts were carried out on the weekend of 12/13 January 2013, with a few exceptions on other dates between 10 and 20 January. All but one known night roosts of Great Cormorants were covered, mostly by experienced volunteer counters. Overall, over 300 people were involved in the waterbird census, over 50 of which reported observations from roosts.

In addition to the roosts on Swiss territory, several roosts across the borders to the neighbouring countries were counted. The results of these counts are presented in the table but not included in the national total. Where roosts were situated right on or very close to the border, roosts were assigned to only one country to avoid double-recording for the national totals. This was done in close contact with the national coordinators of adjacent countries.

Weather conditions on the counting weekend were good. Temperatures during the counting period were average. No waterbodies in the lowland areas were frozen. Due to high precipitation in the month preceding the counts, which in the lowland areas fell as rain, water levels were high, in particular on Lake Constance/Bodensee.

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<sup>1</sup> [http://ec.europa.eu/environment/nature/cormorants/home\\_en.htm](http://ec.europa.eu/environment/nature/cormorants/home_en.htm)

### 3. Results

#### 3.1 Numbers and distribution

In total, 2873 Cormorants were counted in Switzerland, 3763 if the roosts across the borders to adjacent countries are included (Table 1, 2). Overall, 54 occupied roosts were found, 42 of which were in Switzerland. The number of cormorants was smaller than in 2003, when a total of 4201 (5885 with roosts across the border) were recorded (Table 1). In comparison to 2003, numbers were lower on most waterbodies, in particular rivers. The exception is lake Neuchâtel with higher numbers than in 2003.

60 % of the roosts, holding 81 % of Cormorants, were situated on lakes, the rest on rivers, often along dammed parts (reservoirs, Table 1). As in 2003, many roosts were found on islands, despite the overall rarity of islands on Swiss lakes and rivers. The Cormorant is widespread on the Swiss Plateau north of the Alps, while south of the Alpine chain roosts were found only on the two large lakes Verbano/Lago Maggiore and Ceresio/Lago di Lugano (Fig. 1). The two largest roosts, both on Lac Léman/Lake Geneva, held 572 (Les Grangettes) and 574 (Bursinel) individuals. On the majority of roosts, however, fewer than 50 Cormorants were counted (Fig. 2). Roosts tended to be smaller (median 28, mean 77) than in 2003 (median 32, mean 99).

Out of the 54 roosts in total, 32 had been occupied already in January 2003, 22 were new, while for 32 roosts no cormorants were reported in 2013. In many cases new roosts replaced others on the same lake.

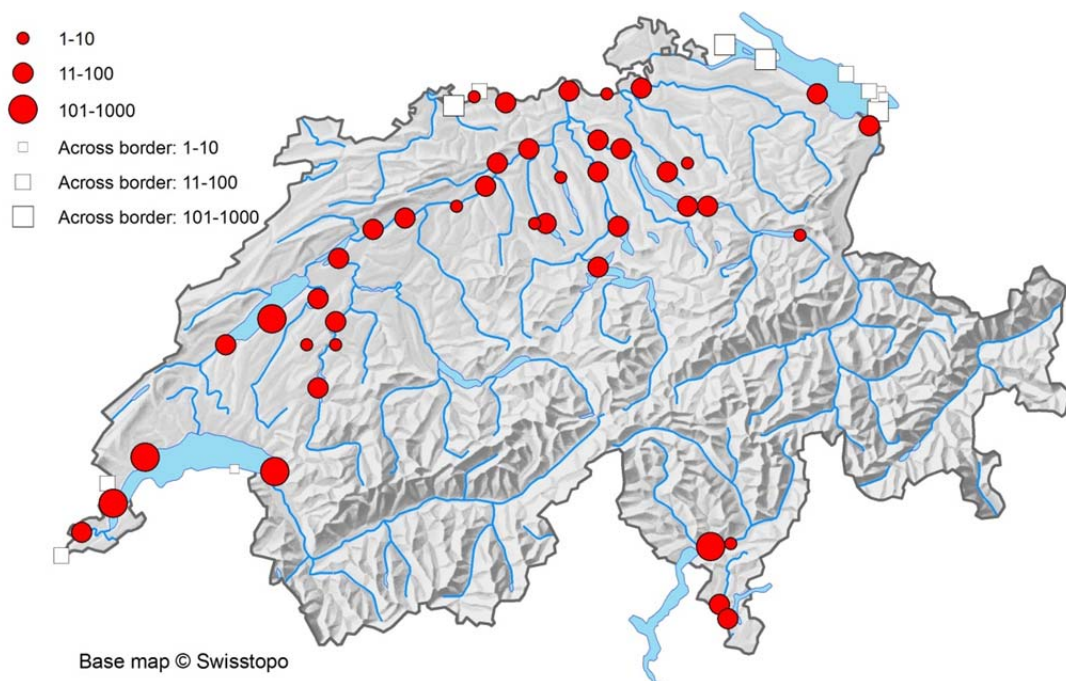


Figure 1. Distribution of Great Cormorant roosts in Switzerland in January 2013. "Across border": Roosts outside Swiss territory.

Table 1. Numbers of Great Cormorant roosts and of roosting individuals per waterbody in 2003 and 2013 for Switzerland, roosts across the borders included. A = Austria, CH = Switzerland, D = Germany, F = France, FL = Duchy of Liechtenstein, I = Italy.

Lake/river	Location of roost (habitat)	2003 Number of occupied roosts	2003 Number of Cormorants	2013 Number of occupied roosts	2013 Number of Cormorants
Lac Léman	Lake	CH 3	1637	CH 3, F 1	1326
Bodensee (Untersee)	Lake	CH 1, D 6	562	D 2	487
Aare	River	4	395	7	261
Hochrhein	River	CH 3, D 2	356	CH 4, D 2	254
Bodensee (Obersee)	Lake	A 3, D 4	240	CH 1, A 1, D 4	248
Lac de Neuchâtel	Lake	1	82	2	195
Verbano/Lago Maggiore	Lake	CH 1	235	CH 1	182
Zürichsee	Lake	3	242	2	111
Ceresio/Lago di Lugano	Lake	I 1	650	CH 2	107
Rhône	River	1	109	CH 1, F 1	93
Sempachersee	Lake	1	61	1	85
Lac de Morat	Lake	1	650	1	77
Greifensee	Lake	1	78	1	73
Bielensee	Lake	1	129	1	46
Zugersee	Lake	1	97	1	42
Saane / Sarine, Lac de la Gruyère	River	2	40	3	42
Reuss	River	1	32	1	40
Limmat	River	1	42	2	24
Vierwaldstättersee	Lake	2	56	1	20
Alpenrhein	River	CH 1, FL 1	64	1	12
Lac de Divonne	Lake	F 1	10	F 1	11
Lac de Seedorf	Small lake	1	3	1	7
Hallwilersee	Lake			1	6
Pfäffikersee	Lake			1	5
Walensee	Lake	1	12	1	4
Laghetto Gudo	Small lake			1	3
Mauensee	Lake	1	6	1	2
Lauerzersee	Lake	1	28		
Seebachtal TG	Small lakes	2	26		
Baldeggersee	Lake	1	18		
Thur	River	2	9		
Inkwilersee	Small lake	1	5		
Canal de la Broye	Canal	1	5		
Aegerisee	Lake	1	3		
Thunersee	Lake	1	3		
Total number on lakes		41 (CH 30, A 3, D 6, F 1, I 1)	4857	32 (CH 22, A 1, D 6, F 2)	3037
Total number on rivers)		19 (CH 16, D 2, FL 1)	1373	22 (CH 19, D 2, F 1)	726
Total roost counts	Switzerland		4201		2873
Total roost counts	Foreign parts included		5885		3763
Total day-time counts	Foreign parts included		6269		4895

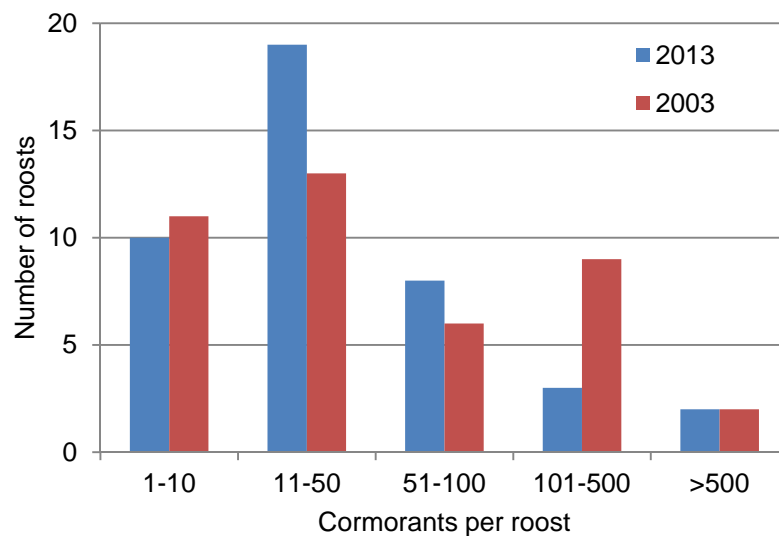


Figure 2. Roost size in 2003 and 2013 in Switzerland.

Table 2. Great Cormorant roosts in Switzerland and adjacent regions in January 2013

Lake/river	Name of roost	Country	Canton (Bundesland, Département)	Swiss grid reference		Longitude	Latitude	Location of roost (habitat)	Date	Number of Cormorants	Counter
Alpenrhein	St. Margrethen-Rheineck	CH	SG	764	258	9.6075	47.4659	River - Island	12.01.	12	W. Gathuler
Bodensee (Obersee)	Salmsach	CH	TG	746	269	9.3853	47.5599	Lake - shore	13.01.	27	W. Looser-Probst
Bodensee (Obersee)	Fussacher Bucht	A	VA	767	263	9.6620	47.5009	Lake - shore	13.01.	140	A. Schönenberger, W. Niederer
Bodensee (Obersee)	Lindau	D	BY	769	268	9.6904	47.5453	Lake - shore	20.01.	4	A. Puchta
Bodensee (Obersee)	Schachener Bucht	D	BY	767	269	9.6642	47.5548	Lake - shore	20.01.	15	A. Puchta
Bodensee (Obersee)	Wasserburg	D	BY	764	270	9.6248	47.5646	Lake - shore	20.01.	12	A. Puchta
Bodensee (Obersee)	Eriskircher Ried	D	BW	756	276	9.5206	47.6205	Lake - shore	13.01.	50	G. Knötzsch
Bodensee (Untersee)	Seerhein gegenüber Kuhhorn	D	BW	728	281	9.1497	47.6715	Lake/river - shore	13.01.	192	A. Reinhardt
Bodensee (Untersee)	Im Mösle	D	BW	714	286	8.9646	47.7191	Lake - shore	13.01.	295	H.-G. Bauer, S. Werner
Hochrhein	Rüdlingen, Alter Rhein	CH	SH	685	271	8.5753	47.5886	River - island	13.01.	77	J. Frey
Hochrhein	Kaiserstuhl	CH	AG	673	269	8.4155	47.5721	River - shore	12.01.	1	W. Müller
Hochrhein	Rhein Wyhlen D, NSG Altrhein	D	BW	620	265	7.7109	47.5399	River - island	13.01.	116	D. Kratzer, M. Leuzinger
Hochrhein	Stein/Bad Säckingen (Fridolinsinsel)	CH	AG	638	266	7.9501	47.5481	River - island	13.01.	29	H. Lüthi
Hochrhein	Rheinfelden	CH	AG	627	268	7.8041	47.5666	River - shore	13.01.	3	B. Pfarr Gambke
Hochrhein	Stauwehr Schwörstadt-Ryburg	D	BW	629	270	7.8308	47.5845	River - shore	13.01.	28	Karl Kuhn
Pfäffikersee	Pfäffikersee	CH	ZH	701	245	8.7821	47.3525	Lake -	13.01.	5	G.A. Forster



Lake/river	Name of roost	Country	Canton (Bundesland, Département)	Swiss grid reference	Longitude	Latitude	Location of roost (habitat)	Date	Number of Cormorants	Counter
Greifensee	Maur, Fluh	CH	ZH	694 242	8.6888	47.3266	shore Lake - shore	12.01.	73	H.U. Dössegger
Walensee	Walenstadt, Insel Bommerstein	CH	SG	740 220	9.2903	47.1206	Lake - island	12.01.	4	R. Noser
Zürichsee	Kloster Wurmshof	CH	SG	708 230	8.8711	47.2165	Lake - shore	12.01.	91	N. Raeber
Zürichsee	Ufenau	CH	ZH	701 230	8.7787	47.2176	Lake - island	13.01.	20	W. Suter
Limmat	Oberengstringen	CH	ZH	678 250	8.4785	47.4006	River - shore	13.01.	12	S.+M. Ruppen
Limmat	Spreitenbach, Chessel	CH	ZH	670 253	8.3731	47.4285	River - island	13.01.	12	K. Wiederkehr
Zugersee	Risch	CH	ZG	677 223	8.4606	47.1579	Lake - shore	13.01.	42	A. Zimmermann
Vierwaldstättersee	Meggenhorn	CH	LU	670 209	8.3662	47.0328	Lake - island	13.01.	20	F. Matter
Reuss	Flachsee Unterlunkhofen	CH	AG	670 242	8.3713	47.3296	River - island	13.01.	40	A. Ingold
Hallwilersee	Riesle	CH	AG	657 240	8.1991	47.3129	Lake - shore	13.01.	6	R. Berner
Sempachersee	Sursee, Gamma-Insel	CH	LU	652 224	8.1311	47.1694	Lake - island	10.01.	85	M. Burkhardt
Mauensee	Mauensee, Insel Bognau	CH	LU	648 224	8.0783	47.1697	Lake - island	12.01.	2	R. Wüst
Bielersee	Hagneck	CH	BE	580 212	7.1819	47.0632	Lake - shore	13.01.	46	D. Trachsel
Aare	Häftli	CH	BE	592 222	7.3397	47.1534	River - island	12.01.	47	A. Blösch
Aare	Altreu-Lüsslingen	CH	BE	603 226	7.4848	47.1894	River - island	13.01.	41	M. Eigenheer-Eggerschwiler
Aare	Wangen-Bannwil	CH	BE	621 230	7.7225	47.2251	River - island	12.01.	5	S. Müller
Aare	Rothrist Hungerzelg / Boningen	CH	AG	631 237	7.8550	47.2876	River - shore	13.01.	28	T. Lüthi
Aare	Trimbach	CH	AG	635 245	7.9085	47.3594	River - shore	13.01.	31	T.B. Schwaller
Aare	Telli/Aarau, Zurlindeninsel	CH	AG	646 250	8.0547	47.4037	River - island	13.01.	33	W. Holliger
Aare	Klingnauer Stausee	CH	AG	660 270	8.2428	47.5824	River - shore	12.01.	76	M. Güntert
Saane/Sarine	Lac de la Gruyère, Corbières	CH	FR	573 167	7.0924	46.6582	River - shore	13.01.	16	C. Grand
Saane/Sarine	Lac de Pérolles, Fribourg	CH	FR	579 182	7.1701	46.7933	River - shore	13.01.	2	M. Trocmé Maillard
Saane/Sarine	Schiffenen, Barberêche	CH	FR	579 190	7.1698	46.8653	River	13.01.	24	S.-P. Parrat
Lac de Neuchâtel	Champ-Pittet	CH	VD	541 182	6.6724	46.7911	Lake - shore	13.01.	40	J.-C. Muriset
Lac de Neuchâtel	Forel	CH	FR	557 191	6.8812	46.8733	Lake - artificial structures	13.01.	155	P. Rapin
Lac de Seedorf	Lac de Seedorf, Corjolens	CH	FR	569 182	7.0392	46.7930	Small lake - shore	13.01.	7	H. Vigneau
Lac de Morat	Guévoz (Vallamand)	CH	VD	573 198	7.0906	46.9371	Lake - shore	13.01.	77	P. Monney
Lac Léman	Les Grangettes	CH	VD	558 138	6.8991	46.3966	Lake - island	12.01.	572	O. Epars
Lac Léman	Bursinel	CH	VD	513 143	6.3131	46.4372	Lake - shore	12.01.	574	F. Mathey

Lake/river	Name of roost	Country	Canton (Bundesland, Département)	Swiss grid reference		Longitude	Latitude	Location of roost (habitat)	Date	Number of Cormorants	Counter
Lac Léman	Lugrin	F	HS	544	139	6.7169	46.4046	Lake - shore	12.01.	4	J.-J. Beley
Lac Léman	Versoix-Prévostier	CH	VD	502	127	6.1734	46.2918	Lake - shore	12.01.	176	J.-L. Loizeau
Lac de Divonne	Lac de Divonne	F	Ain	500	134	6.1459	46.3545	Lake - island	12.01.	11	M. Jaussi
Rhône	Verbois/Aire-la-Ville	CH	GE	491	117	6.0330	46.2002	River - shore	12.01.	70	B. Lugrin (estimate)
Rhône	Etournal	F	HS	484	109	5.9443	46.1271	River - island	11.01.	23	S. Gardien
Laghetto Gudo	Laghetto Gudo	CH	TI	716	113	8.9470	46.1629	Small lake	13.01.	3	A. Lubini
Verbano/Lago maggiore	Bolle di Magadino	CH	TI	709	112	8.8561	46.1551	Lake - shore	11.01.	182	Ufficio della Caccia e della Pesca TI
Ceresio/Lago di Lugano	Caslano	CH	TI	712	92	8.8902	45.9747	Lake - shore	11.01.	71	Ufficio della Caccia e della Pesca TI
Ceresio/Lago di Lugano	Vico Morcote	CH	TI	715	87	8.9257	45.9299	Lake - shore	11.01.	36	Ufficio della Caccia e della Pesca TI
Total Switzerland										2873	
Total (roosts across borders included)										3763	
Total Switzerland day-time counts										4216	
Total day-time counts (foreign parts included)										4895	

### 3.2 Population trend

Cormorant numbers in Switzerland increased strongly until the early 1990s (maximum number in January 8412 individuals in 1992, roosts across the borders included; Fig. 3). Subsequently numbers dropped to 5000 to 6000 birds after the turn of the century (Schifferli et al. 2005). Data up to 2005 were largely based on roost counts, supplemented by day-time counts from the waterbird census for a few lakes where roost counts were lacking. Since 2006 the total of the day-time counts is used to document the national population trend. These data indicate a further decline to 4000 to 5000 birds in the last five years (Fig. 3). A decline is also documented by roost and day-time counts from those waterbodies where both type of counts were available for most years, i.e. for Switzerland, including the whole of Lac Léman but without Bodensee and Lago di Lugano (Fig. 4). On average, the total number counted at roosts amounted to around 70 % of the day-time total, both for the whole of Switzerland and for Lac Léman and the Rhône river up- and downstream of the lake.

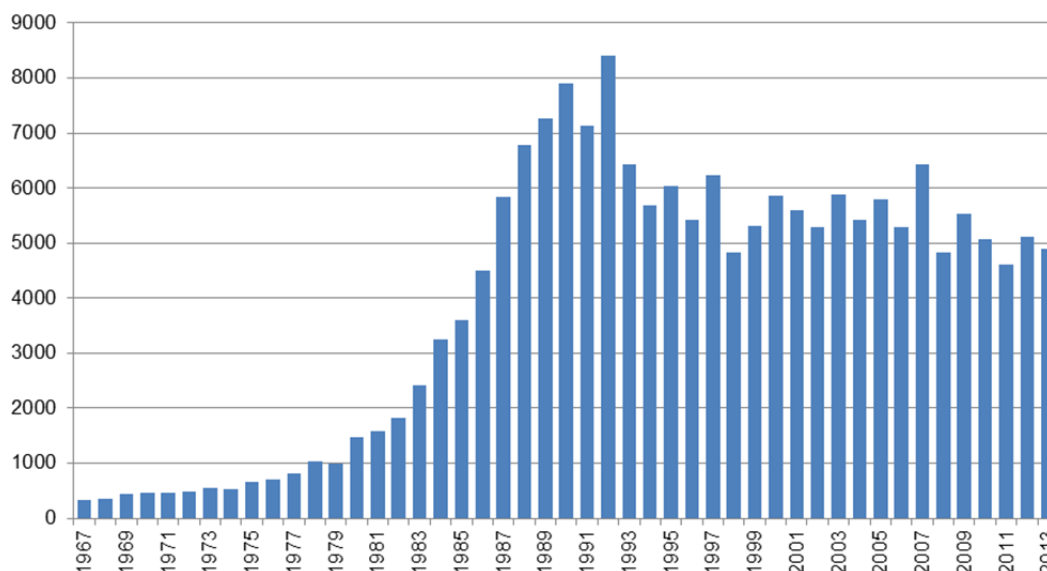


Figure 3. Number of Great Cormorants in January for Switzerland, roosts across the borders included (Schifferli et al. 2005, Müller & Keller 2013). Data 2006-2013 refer to day-time counts for the waterbird census.

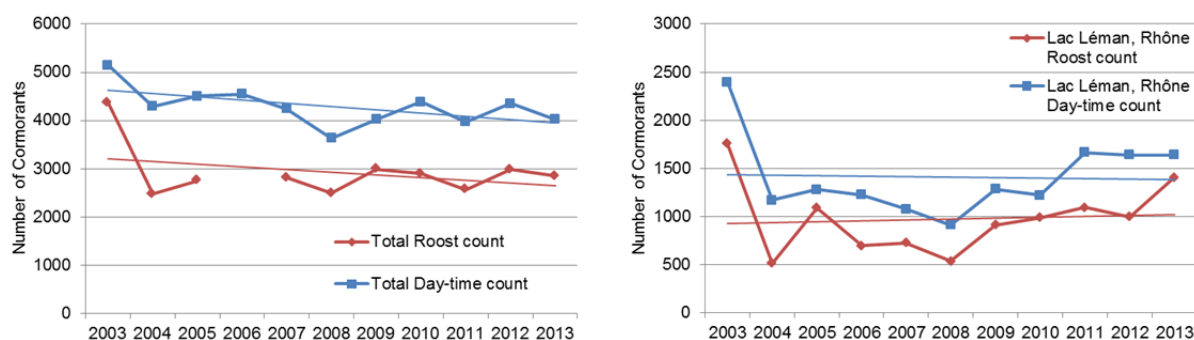


Figure 4. Number of Great Cormorants counted in January during the waterbird census (day-time count) and during roost counts in Switzerland, excluding Bodensee and Lago di Lugano (left), and for Lac Léman and Rhône (right).

## 4. Discussion

The roost counts can be regarded as reliable although it cannot be excluded that some roosts have been missed. This may have been the case on Lake Neuchâtel, where the day-time count was twice as high as the total of the three roosts. No roost count was carried out at the Fanel, the lower end of the lake, where some Cormorants are likely to spend the night on the artificial islands, which are also used as resting sites during the day. According to local ornithologists, numbers at the Fanel were, however, generally low in January, which is confirmed by the count of 15 individuals only for the day-time census.

Roost counts are generally considered to be more reliable than day-time counts (Van Eerden et al. 2011) but they require a special effort by observers. In Switzerland, a few roosts usually remain uncounted despite the fact that waterbird counters are asked every year to record the Cormorants also at the roost. The national total based on roost counts only is thus likely to be too low, which would correspond to the generally higher day-time counts recorded during the waterbird census. On the other

hand, day-time counts may overestimate the total, because cormorants are highly mobile when feeding and the risk of double-counting can be high. The consistently higher day-time count for the Lake Geneva basin, an area well covered for day-time and for roost counts would indicate an overestimation based on day-time counts. Both roost and day-time counts of the last ten years, however, seem to give reliable trend estimates in Switzerland, which was the case also for earlier years (Schifferli et al. 2005). In Switzerland, coverage of waterbodies for day-time counts reaches almost 100 %. We therefore decided to document the long-term trend from 2006 onwards based on the day-time census, backed up by roost censuses where possible.

The difference between the roost counts 2003 and 2013 was relatively high and indicates a decline. Weather conditions may have exaggerated the difference. In 2003 a cold spell in northern Europe in early January may have led to relatively high numbers in Switzerland, whereas in 2013 mild weather prevailed. Both annual day-time and roost counts confirm a decline from 2003 to 2013.

The trend of the wintering population differs from the trend in the breeding population, which has shown a strong increase since the first breeding record in 2001 (Keller et al. 2012, Keller & Müller 2013). As in the time before the establishment of breeding colonies, the wintering population seems to consist of birds arriving from more northern colonies. The majority of Swiss breeding birds migrates further south in autumn (Antoniazza et al. 2012).



*Figure 5. Lac Léman, important wintering site of Great Cormorants in Switzerland*

## 5. References

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