Notes based on Joe Morlan's Ornithology class lecture February 10th, 2010.
Joe Morlan is not responsible for these notes, any errors or omissions in them are mine.

Cormorant status and distribution in CA

If you are seawatching, the cormorants that you see along the coast of CA are: Brandt's, the most common, then Pelagic, the next most common, and then Double-crested, the least common.
As you head into SF Bay, the Double-crested Cormorant starts to take over, it nests underneath the bridges over the bay and becomes abundant in places like Lake Merritt where you are much less likely to encounter either a Brandt's or a Pelagic.
As you head inland into swamps and freshwater lakes, the only cormorant you will see will be the Double-crested. The status and distribution varies depending on the salinity of the water and the proximity to the coast. The Brandt's and the Pelagic are strictly Pacific coast birds.

Pelagic Cormorant

The name is a misnomer, the bird is seldom seen out over open water.

OCCURRENCE

A reasonably common breeding bird along the immediate coast of CA. Ranges up into Alaska. Strictly coastal. Almost never found on inland lakes, in freshwater habitats or anywhere away from the immediate coast. There are a couple of records from the Central Valley. There are no records from the Salton Sea. Any inland Pelagic Cormorant is quite noteworthy.
Present year round.
Tend not to be particularly gregarious, large flocks of cormorants are unlikely to be Pelagic Cormorants.
Nest on sheer cliff faces in places like Año Nuevo State Preserve, Bodega Head and occasionally on offshore rocks right around SF, particularly some of the rocks underneath the Golden Gate Bridge and on the Marin County side. They nest at the edge of the cliff, sitting with their tails hanging down from the edge of the ledge, not on the marine terrace, which is the niche of Brandt's Cormorant.
They use seaweed as nesting material, they build the nest right in onto the vertical ledges. The babies are about full size when they fledge. They have one step to make over usually a 30 - 50 foot drop. They jump around and get their wings working quite a bit and then take off.

FIELD MARKS

The smallest of the three cormorants that occur regularly in the Bay Area.
Rather thin-necked.
Head decidedly small, merely seems to be an extension of the neck. That is particularly evident in flight: they hold their necks out straight and you don't really see the head at all. You see a thin bill projecting in front of what appears to be the end of the neck.
Best identified by its thin, toothpick-like bill, about equally thin at the base as at the tip. It looks as if the bill is rather weak and might break, you do not get that sense on the Brandt's or the Double-crested, where the base of the bill flares up into the skull and seems to be well attached to the entire front end of the face.
Some individuals have a slightly stronger bill though.
Bill all dark in all plumages.

They have the suggestion of a chin. The feathering comes up at an angle underneath the base of the bill. On the other cormorants the chin forms a straight line with the lower mandible, so there is no angularity in the chin area.
Longer tailed than our other cormorants. That is an adaptation for nesting on cliff ledges so that they can balance better. It is also evident in flight. If you have cormorants flying in a distance, relative tail length is one thing to look for.

Breeding plumage
White flank patches on the sides during the breeding season only, starting by March. The only cormorant in CA that has those.
A considerable amount of red skin may be visible on the face.
Sometimes the occasional white plume on the neck.
Frequently a crest of feathers sticking up on the top of the head and another crest behind. Sometimes these crest feathers are quite obvious, many times they are obscure or worn off. If you see a cormorant with two crests on top of its head it is a Pelagic Cormorant, not a Double-crested.

Immature
Uniform dark color overall, no paleness on the belly or on the front of the neck.
Darker and blacker than the immatures of any of the other cormorant species.
Bill all dark.

Red-faced Cormorant

OCCURRENCE
Endemic to the Aleutian Islands. Permanent resident, very few records elsewhere.
Nest similarly to Pelagic Cormorants on cliff ledges.

FIELD MARKS
Like a Pelagic Cormorant on steroids, superficially similar to it, but a more robust bird, a Pelagic cormorant is more snake-like.
Red face, blue base to the pale bill.
Double crests on the top of the head.
White flank patches in the breeding season.
Relatively long tail.

Differences from Pelagic Cormorant:
Larger size.
Thicker neck.
Larger head.
More massive bill
More red on the face and blue only at the base of the bill, not on the throat.
Bill largely yellow or pale in all plumages.
Bronzy or brown color on the wing coverts contrasting with greenish sheen on the neck, whether you see that or not is dependant on light conditions.

Brandt's Cormorant

OCCURRENCE AND BREEDING BIOLOGY

Endemic to the west coast of NA. Ranges up to British Columbia, very rare in Alaska.
It is the most common cormorant along the immediate coast of CA.
Colonial water bird, nest in colonies, like Pelagic.
The bulk of their population is in central CA where large numbers nest on the Farallon Islands. Many of those birds forage in SF Bay and bring food back to the colonies on the Farallon Islands, a 60 miles round trip. There is a lot more fish available in the bay. There also is quite a lot of fish around the Farallon Islands, especially juvenal Rock Fish, but there is a huge amount of competition for those fish, including other seabirds like Common Murres that also are nesting on those islands. During the nesting season the numbers of available juvenal Rock Fish dwindle. At the same time there is a lot of anchovy and other fish that live in shallow waters that wander up and down the coast.
Males and females only possible to distinguish by behavior.
Males arrive on the breeding grounds, build a superficial nest, stand on the nest and skypoint with their bill showing off how blue their throat is. At the same time they stick their tail straight up in the air. They wave their head back and forth. This is called the advertising display. It is given only by unmated males. Usually the female does the bulk of the work completing the nest that the male starts and then lays the eggs. Incubation duties are shared as well as continual nest building while the eggs are in the nest.
Many species of waterbirds are colonial, particularly when their food resources, which in this case are schooling fish, are unreliable. They are not able to secure a territory which includes their food resources. But there are territories. Each nest has a territory around it. The size of the territory is the distance a Brandt's Cormorant can peck.
There is a direct correlation between nesting success and the age of the female. Older females are more likely to produce more young to maturity than inexperienced females are.
There are extra pair copulations in Brandt's Cormorant colonies. When males leave the nest females saunter off to a male that is unattended on another nest and invite copulation.
They have nested on Seal Rocks off the Cliff House. They do not do that every year. They do nest every year at Bird Rock, Point Lobos in Marin County, a good place to go in the beginning of the nesting season and watch the displaying males. Nesting numbers seem to be dependent on water temperature. Cold water is good, that usually means there is a good number of juvenal Rock Fish which is really important for feeding the babies.
When you have mixed colonies of Brandt's and Pelagic cormorants the Brandt's occupy the marine terrace and the Pelagic are on the cliff face. They occupy different microniches, following Gauss's Law of Competitive Exclusion. To avoid competition the birds exclude each other by occupying different ecological niches. In general different species of birds do not overlap each other directly in resources used. If they did, natural selection would favor one over the other and one of them would go extinct. (Mathematically the coefficient of competition is a measurement of the percentage of overlap that different bird species have with other species in terms of resources used. It is a number between 0 and 1.)

FIELD MARKS

Pale buff fringe of feathers around the gular pouch (bare skin under the throat), which is hard to see from a distance, the birds just look all black.
At the height of the nesting season, the gular pouch turns bright blue.

Bill thicker at the base, flared out at the chin so there is no angularity there like in Pelagic.
Neck held fairly straight in flight, head appears rounded.
A rounded crown is typical of Brandt's.
Tail quite short and blunt.

Immature
Uniformly brown with variable amounts of pale brown on the belly, but usually not very much on the neck
Bill all dark, key difference to Double-crested.
The tan feathering in the area that borders the gular pouch is already present and is the palest part.

Double-crested Cormorant

OCCURRENCE AND BREEDING BIOLOGY
The most widespread species of cormorant in NA ranging from coast to coast.
Very common in freshwater lakes.
They nest in a variety of habitats including snags. Particularly in flooded areas where trees have died because of flooding such as the building of dams. This frequently creates a suitable nesting habitat for Double-crested Cormorants.
Were 30 years ago placed on the Audubon Society's Blue List of early warning indicating that the birds had suffered noncyclic declines. There were concerns that the birds were declining seriously.
That has all changed and the birds have adapted to quite a few new situations.
They were first found nesting underneath the Richmond-San Rafael Bridge a few decades ago. Biologists have been monitoring that colony consistently ever since.
They have since moved to nesting underneath the San Mateo Bridge and the Bay Bridge.
At Lake Merritt in Oakland, where the birds were found formerly only in the wintertime, they now breed commonly in the dead snags on the islands at the north end of the lake.
In SF they have been nesting for quite a few years now at Lake Merced within Great Blue Heron colonies at the northwest and southwest ends of the lake.
Small numbers nest mixed in with Brandt's Cormorants on rocky offshore islands. A tiny population nests on the Farallon Islands on a hill top called Main Top, above the Brandt's and the Pelagic cormorants.
They also nest on marine terraces and rocky edges in a few places.
In the nest the chicks have a layer of dark down and they continue to have that down as they grow (all 3 species). The adult goes out fishing and swallows fish which end up in an enlargement attached to the gullet called the crop. They fill up their crop and when they arrive on the nesting site the babies start pecking at the bill to try to get the adult bird to disgorge. The adults are very reticent about giving up what's in their crop. They open up the bill but they are not able to disgorge and the baby bird reaches up inside the neck of the adult bird. It looks like the adult bird eating the baby bird. This all happens on a cliff ledge where if you misstep you're going to drop 50 feet.

WING DRYING BEHAVIOR
Cormorants have wettable feathers, which means that water does not bead off their feathers the way it does on a duck. That allows them to submerge under the water quite easily and often you

can see them swimming very low in the water with just a little bit of the body showing above the surface. Because their feathers frequently get wet they are often seen hanging their wings out to dry. It is sometimes said that cormorants do not have a preen gland or uropygial gland to waterproof their feathers. That is false. All cormorants have a uropygial gland. It apparently does not produce very much wax in a Double-crested Cormorant. The Double-crested Cormorant is far more likely to be seen hanging its wings out to dry than either of our other species. Joe not sure he has ever seen a Pelagic Cormorant do it. Brandt's Cormorants do it rarely. Double-crested Cormorants tend to do it a lot.

FIELD MARKS

A lot of yellow skin including yellow in the lores.
Yellow gular pouch.
Birds in the west have more yellow on the throat than birds in the east.
A little white border on the chin is not that unusual, it should not be used to try to make a Neotropic Cormorant of the bird, the easy field mark to distinguish them is the color of the lores, yellow in Double-crested, black in Neotropic.
There is a difference in the shape of the pouch. In Neotropic it comes back further and comes back at more of an acute angle.
Bill pale, often yellow, especially on the younger birds. That is an excellent field mark, neither Brandt's nor Pelagic ever show a yellow bill. The only other one is Red-faced, which we do not have here.
In flight frequently the bill color stands out.
Some adult birds will have a dark bill, especially during the height of the nesting season.
Usually no crest.
The double crests are plumes like bushy eyebrows above each eye which are either black or white (color morphs). In the west the white outnumber the black, in the east the black outnumber the white.
In flight about the same size as Brandt's but seems to have a relatively bigger head and typically there is a crook in the neck with the head held higher than the rest of the neck. Different from the Pelagic which has a snake-like neck that sticks straight out and the Brandt's which has a straight neck and a small, rounder head, not blocky like that of the Double-crested.
Myrtle green eyes (bluer on Brandt's).

Immature

The whole foreneck and throat is usually pale.
Yellow bill.