

In ictu oculi

VOLUME 2: BIRDS

(Cariamiformes, Coraciiformes, Ciconiiformes,
Columbiformes, Cuculiformes, Eurypygiformes, Falconiformes, Galliformes)

Table of Contents

<i>In ictu oculi</i>	1
VOLUME 2: BIRDS.....	1
(Cariamiformes, Coraciiformes, Ciconiiformes,	1
Columbiformes, Cuculiformes, Euripygiformes, Falconiformes, Galliformes)	1
Order Cariamiformes	5
Family Cariamidae	5
Red-legged seriema (<i>Cariama cristata</i>).....	5
.....	8
Order Coraciiformes	9
Family Meropidae	9
White-fronted bee-eater (<i>Merops bullockoides</i>)	9
White-throated bee-eater (<i>Merops albicollis</i>)	11
Rainbow bee-eater (<i>Merops ornatus</i>)	14
Northern carmine bee-eater (<i>Merops nubicus</i>)	15
Family Alcedinidae.....	18
Guam kingfisher (<i>Todiramphus cinnamominus</i>)	18
Forest kingfisher (<i>Todiramphus macleayii</i>)	19
Sacred kingfisher (<i>Todiramphus sanctus</i>)	21
Blue-winged kookaburra (<i>Dacelo leachii</i>)	22
Laughing kookaburra (<i>Dacelo novaeguineae</i>)	30
Ruddy kingfisher (<i>Halcyon coromanda</i>)	36
Collared kingfisher (<i>Todiramphus chloris</i>)	38
Family Coraciidae	39
Oriental dollarbird (<i>Eurystomus orientalis</i>)	39
.....	40

Blue-bellied roller (<i>Coracias cyanogaster</i>)	43
---	----

Family Laridae 44

European herring gull (<i>Larus argentatus</i>)	44
Great black-backed gull (<i>Larus marinus</i>)	47
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	49
Greater crested tern (<i>Thalasseus bergii</i>)	50
Hartlaub's gull (<i>Chroicocephalus hartlaubii</i>)	57
Black-legged kittiwake (<i>Rissa tridactyla</i>)	58
Inca tern (<i>Larosterna inca</i>)	59
Caspian tern (<i>Hydroprogne caspia</i>)	62
White tern (<i>Gygis alba</i>)	63
White-fronted tern (<i>Sterna striata</i>)	64
Pacific gull (<i>Larus pacificus</i>)	65
Kelp gull (<i>Larus dominicanus</i>)	70
Silver gull (<i>Chroicocephalus novaehollandiae</i>)	73

Family Scolopacidae 77

Common greenshank (<i>Tringa nebularia</i>)	77
Common redshank (<i>Tringa totanus</i>)	78
Red knot (<i>Calidris canutus</i>)?	79
Far Eastern curlew (<i>Numenius madagascariensis</i>)	80

Family Recurvirostridae 81

Pied avocet (<i>Recurvirostra avosetta</i>)	81
Red-necked avocet (<i>Recurvirostra novaehollandiae</i>)	83
Unknown juvenile wader	84
Black-winged stilt (<i>Himantopus himantopus</i>)	85

Family Alcidae 88

Common murre or common guillemot (<i>Uria aalge</i>)	88
Tufted puffin (<i>Fratercula cirrhata</i>)	92

Family Charadriidae 94

Spur-winged lapwing (<i>Vanellus spinosus</i>)	94
Masked lapwing (<i>Vanellus miles</i>)	95
Banded lapwing (<i>Vanellus tricolor</i>)	101
Black-fronted dotterel (<i>Elseyornis melanops</i>)	105

Pacific golden plover (<i>Pluvialis fulva</i>)	106
Lesser sand plover (<i>Charadrius mongolus</i>)	107
Family Jacanidae	109
Comb-crested jacana (<i>Irediparra gallinacea</i>)	109
Order Ciconiiformes.....	110
Family Ciconiidae	110
Marabou stork (<i>Leptoptilos crumenifer</i>)	110
Yellow-billed stork (<i>Mycteria ibis</i>)	117
Saddle-billed stork (<i>Ephippiorhynchus senegalensis</i>).....	119
Storm's stork (<i>Ciconia stormi</i>)	122
.....	122
Black-necked stork (<i>Ephippiorhynchus asiaticus</i>)	123
Black stork (<i>Ciconia nigra</i>)	137
Milky stork (<i>Mycteria cinerea</i>)	139
Painted stork (<i>Mycteria leucocephala</i>).....	140
Woolly-necked stork (<i>Ciconia episcopus</i>)	142
Abdim's stork (<i>Ciconia abdimii</i>)	145
White stork (<i>Ciconia ciconia</i>)	148
Family Ardeidae	150
Great egret (<i>Ardea alba</i>)	150
Order Columbiformes	153
Family Columbidae	153
Mindanao bleeding-heart (<i>Gallicolumba crinigera</i>)	153
Topknot pigeon (<i>Lopholaimus antarcticus</i>)	154
Brown cuckoo-dove (<i>Macropygia phasianella</i>)	158
Domestic pigeon (<i>Columba livia domestica</i>)	162
African mourning dove (<i>Streptopelia decipiens</i>)	170
Diamond dove (<i>Geopelia cuneata</i>)	174
Mourning dove (<i>Zenaida macroura</i>)	180
Laughing dove (<i>Spilopelia senegalensis</i>)	181
Speckled pigeon (<i>Columba guinea</i>)	183
Sulawesi ground dove (<i>Gallicolumba tristigmata bimaculata</i>)	186

African olive pigeon (<i>Columba arquatrix</i>)	187
Pheasant pigeon (<i>Otidiphaps nobilis</i>)	188
Common emerald dove (<i>Chalcophaps indica</i>).....	189
Cuckoo dove (Genus <i>macropygia</i>)	192
Pied imperial pigeon (<i>Ducula bicolor</i>).....	193
Torresian imperial pigeon (<i>Ducula spilorrhoa</i>)	196
Spotted dove (<i>Spilopelia chinensis</i>)	197
Bar-shouldered dove (<i>Geopelia humeralis</i>)	201
White-headed pigeon (<i>Columba leucomela</i>)	202
Crested pigeon (<i>Ocyphaps lophotes</i>)	212
Kererū (<i>Hemiphaga novaeseelandiae</i>).....	220
Zebra dove (<i>Geopelia striata</i>)	222
Brush bronzewing (<i>Phaps elegans</i>).....	229
Flock bronzewing (<i>Phaps histrionica</i>)	234
Modena pigeon (<i>Columba livia domesticus</i>)	236
Ruddy ground dove (<i>Columbina talpacoti</i>).....	237
Superb fruit dove (<i>Ptilinopus superbus</i>).....	238
Rose-crowned fruit dove (<i>Ptilinopus regina</i>)	243
Wompoo fruit dove (<i>Ptilinopus magnificus</i>)	247
Wonga pigeon (<i>Leucosarcia melanoleuca</i>)	248
Victoria crowned pigeon (<i>Goura victoria</i>)	254
Nicobar pigeon (<i>Caloenas nicobarica</i>)	257
White-bibbed ground dove (<i>Pampusana jobiensis</i>)	266
Squatter pigeon (<i>Geophaps scripta</i>).....	270
Spinifex pigeon (<i>Geophaps plumifera</i>).....	271
Common wood pigeon (<i>Columba palumbus</i>)	274

Order Coraciiformes.....277

Family Alcedinidae

Blue-winged kookaburra (<i>Dacelo leachii</i>)	277
Laughing kookaburra (<i>Dacelo novaeguineae</i>)	285
Ruddy kingfisher (<i>Halcyon coromanda</i>)	291
Collared kingfisher (<i>Todiramphus chloris</i>)	293

Order Cuculiformes.....294

Family Cuculidae	294
Guira cuckoo (<i>Guira guira</i>)	294
Pheasant coucal (<i>Centropus phasianinus</i>).....	296
Pacific koel (<i>Eudynamys orientalis</i>)	301
Channel-billed cuckoo (<i>Scythrops novaehollandiae</i>).....	306
Order Eurypygiformes.....	309
Family Eurypygidae	309
Sunbittern (<i>Eurypyga helias</i>).....	309
Order Falconiformes	311
Family Falconidae.....	311
Striated caracara (<i>Phalacrocorax australis</i>)	312
Crested caracara (<i>Caracara plancus</i>).....	314
Rock kestrel (<i>Falco rupicolus</i>)	316
Nankeen kestrel (<i>Falco cenchroides</i>)	319
Merlin (<i>Falco columbarius</i>)	326
Eurasian hobby (<i>Falco subbuteo</i>)	327
Order Galliformes	328
Family Cracidae.....	328
Nocturnal curassow (<i>Nothocrax urumutum</i>)	330
Family Phasianidae	334
Golden pheasant (<i>Chrysolophus pictus</i>).....	334
Great argus (<i>Argusianus argus</i>).....	338
Lady Amherst's pheasant (<i>Chrysolophus amherstiae</i>)	340
Bulwer's pheasant (<i>Lophura bulweri</i>).....	343
Siamese fireback (<i>Lophura diardi</i>)	345
Temminck's tragopan (<i>Tragopan temminckii</i>)	346
Domestic turkey (<i>Meleagris gallopavo domesticus</i>).....	348
Crested partridge (<i>Rollulus rouloul</i>)	352

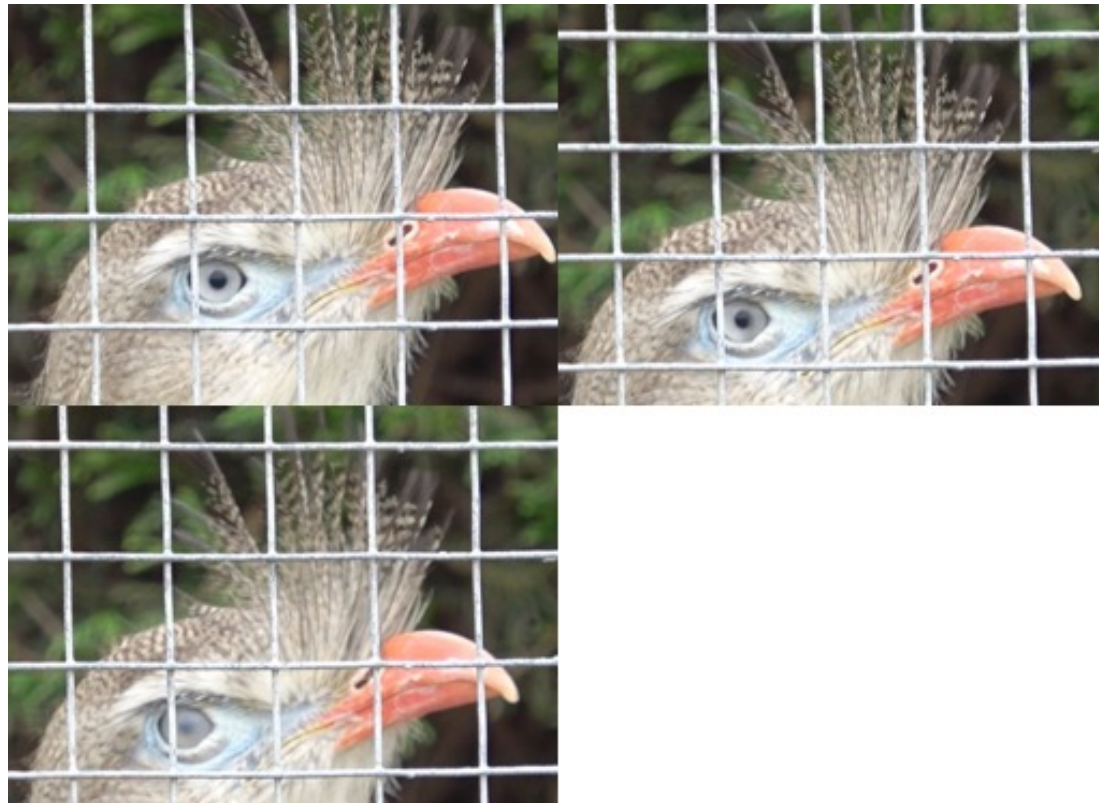
Japanese quail (<i>Coturnix japonica</i>).....	353
Brown quail (<i>Synoicus ypsilophorus</i>).....	360
Himalayan monal (<i>Lophophorus impejanus</i>)	362
Palawan peacock-pheasant (<i>Polyplectron napoleonis</i>).....	363
Mountain peacock-pheasant (<i>Polyplectron inopinatum</i>)	364
.....	365
Erckel's spurfowl (<i>Pternistis erckelii</i>).....	366
Common pheasant (<i>Phasianus colchicus</i>)	367
Silver pheasant (<i>Lophura nycthemera</i>)	372
Indian peafowl (<i>Pavo cristatus</i>)	377
Green peafowl (<i>Pavo muticus</i>)	381
Congo peafowl (<i>Afropavo congensis</i>)	384
Chicken (<i>Gallus gallus domesticus</i>)	385
Chukar partridge (<i>Alectoris chukar</i>).....	394
White-cheeked partridge (<i>Arborophila atrogularis</i>).....	400
King quail (<i>Synoicus chinensis</i>)	401
Picture Bird app says it is a Western Capercaillie (<i>Tetrao urogallus</i>) but its neck is too short	405
Family Odontophoridae	406
Stone partridge (<i>Ptilopachus petrosus</i>)	406
Northern bobwhite (<i>Colinus virginianus</i>).....	407
Family Megapodiidae	411
Malleefowl (<i>Leipoa ocellata</i>)	411
Australian brushturkey (<i>Alectura lathamii</i>)	413
Orange-footed scrubfowl (<i>Megapodius reinwardt</i>)	419
Family Numididae.....	420
Helmeted guineafowl (<i>Numida meleagris</i>).....	420
Vulturine guineafowl (<i>Acryllium vulturinum</i>)	422

Order Cariamiformes

Family Cariamidae

Red-legged seriema (*Cariama cristata*)

Nictitating membrane blink







Nictitating membrane blink. Opacity of membrane varies.



Order Coraciiformes

Family Meropidae

White-fronted bee-eater (*Merops bullockoides*)

Nictitating membrane blink on head turn





Nictitating membrane blink on head movement.

White-throated bee-eater (*Merops albicollis*)

Nictitating membrane blink on head turn







Nictitating membrane blink on head movement.

Rainbow bee-eater (*Merops ornatus*)

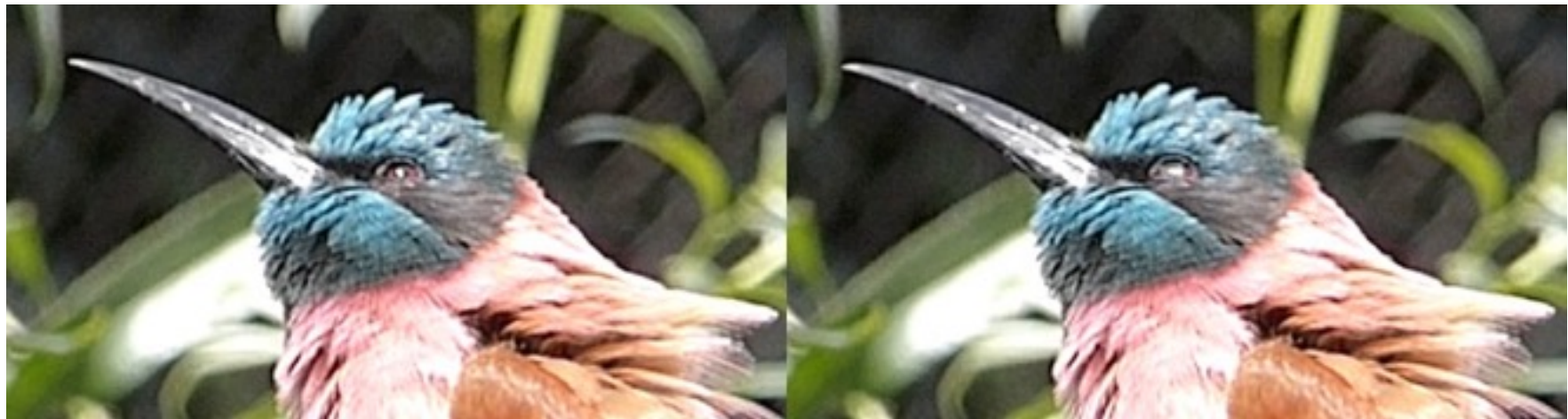
Nictitating membrane blink on head turn



Northern carmine bee-eater (*Merops nubicus*)

Blink a: Nictitating membrane blink on head turn





Nictitating membrane blink on head movement.

Blink b: Elevation of lower lid on preening



*Elevation of
lower lid on
preening.*

Family Alcedinidae

Guam kingfisher (*Todiramphus cinnamominus*)

Nictitating membrane blink on head turn



Forest kingfisher (*Todiramphus macleayii*)

Nictitating membrane blink on head turn





Sacred kingfisher (*Todiramphus sanctus*)

Nictitating membrane blink on head turn

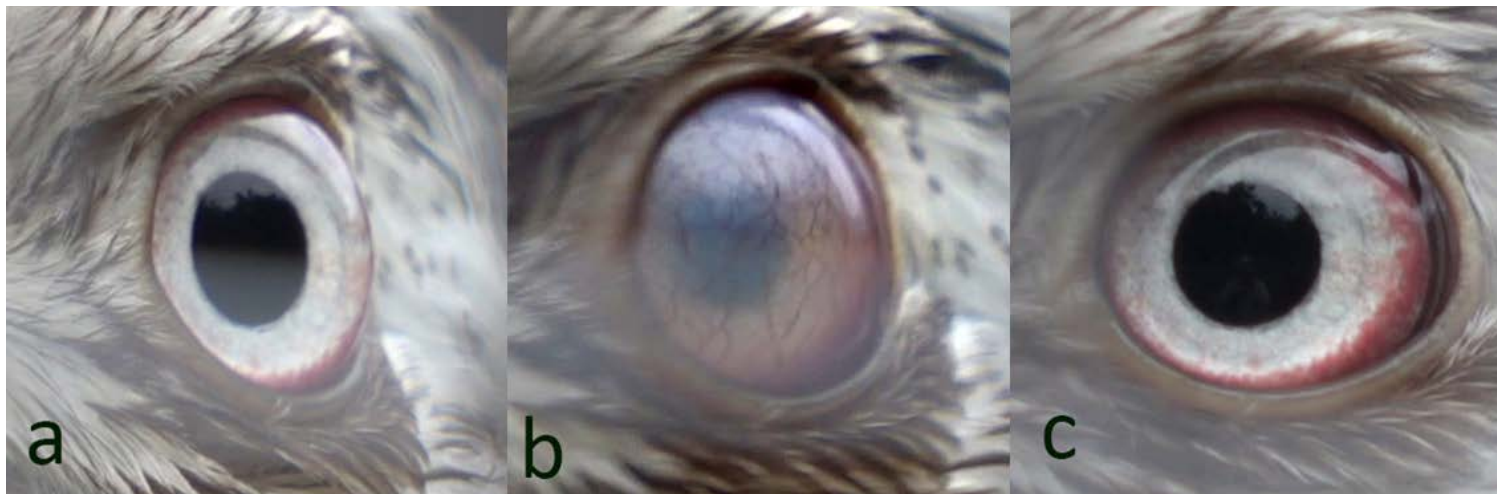


Blue-winged kookaburra (*Dacelo leachii*)

Nictitating membrane blink on head turn



Nictitating membrane blink on eye movement



a) Pre-blink. b) Semi-transparent nictitating membrane covers the eye. Note blood vessels. c) Post-blink. Note red colouration around periphery of iris.

Nictitating membrane blink on head turn



Nictitating membrane blink on head turn



Nictitating membrane blink



Red rimmed iris



Nictitating membrane blink



Vestibulo-collic reflex



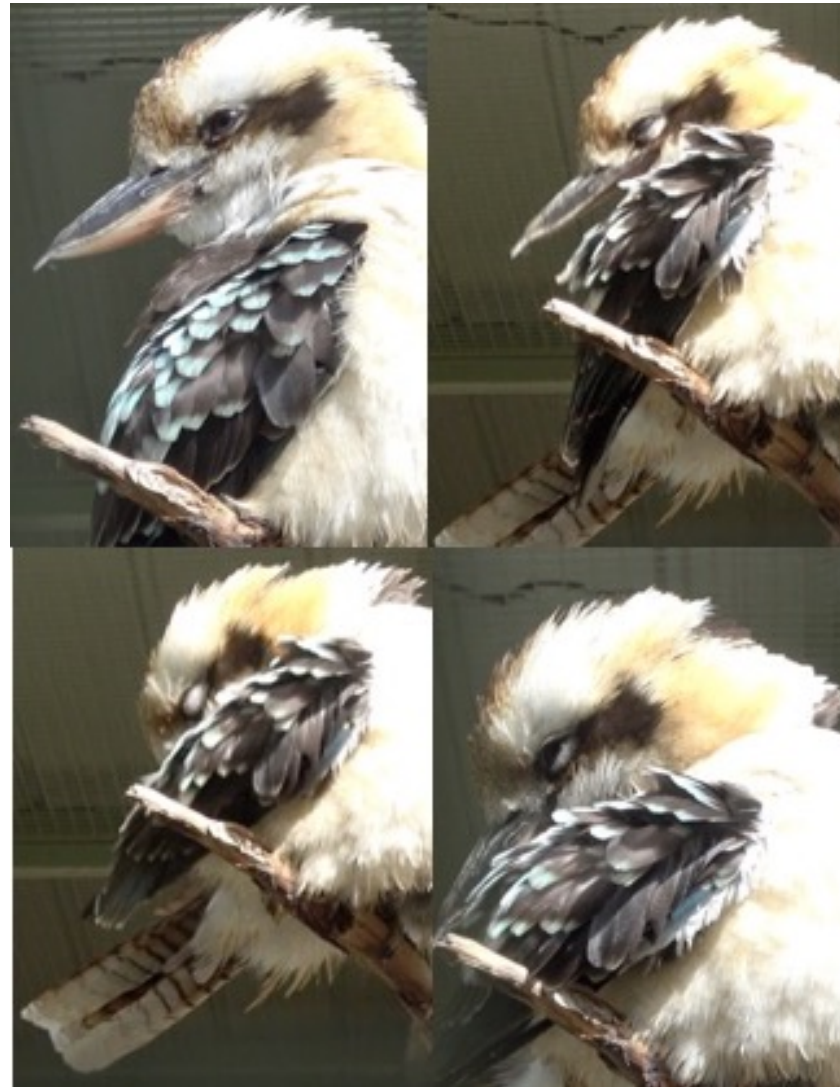
Head remains in the same position as the body is rotated on a tripod.

Laughing kookaburra (*Dacelo novaeguineae*)

Nictitating membrane blink on head turn



Lower lid elevation on preening



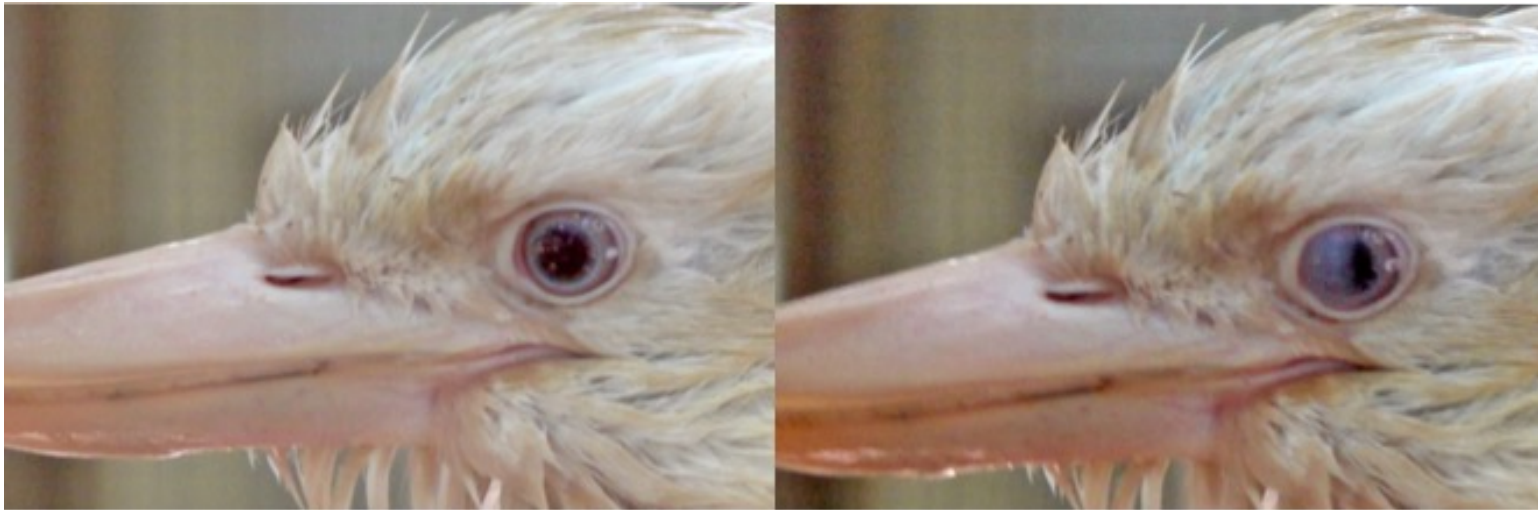
Nictitating membrane blink



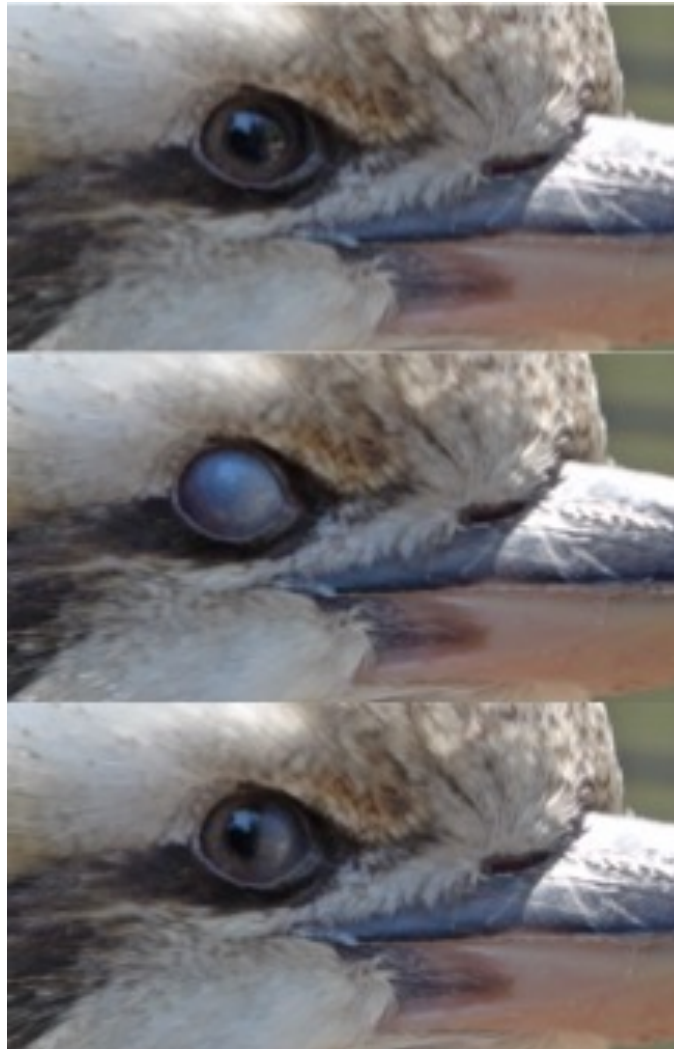
Nictitating membrane blink on head turn



Albino. Nictitating membrane blink on head turn



Nictitating membrane blink on head turn



Ruddy kingfisher (*Halcyon coromanda*)

Nictitating membrane blink on head turn



Nictitating membrane blink on head turn



Collared kingfisher (*Todiramphus chloris*)

Nictitating membrane blink on head turn



Family Coraciidae

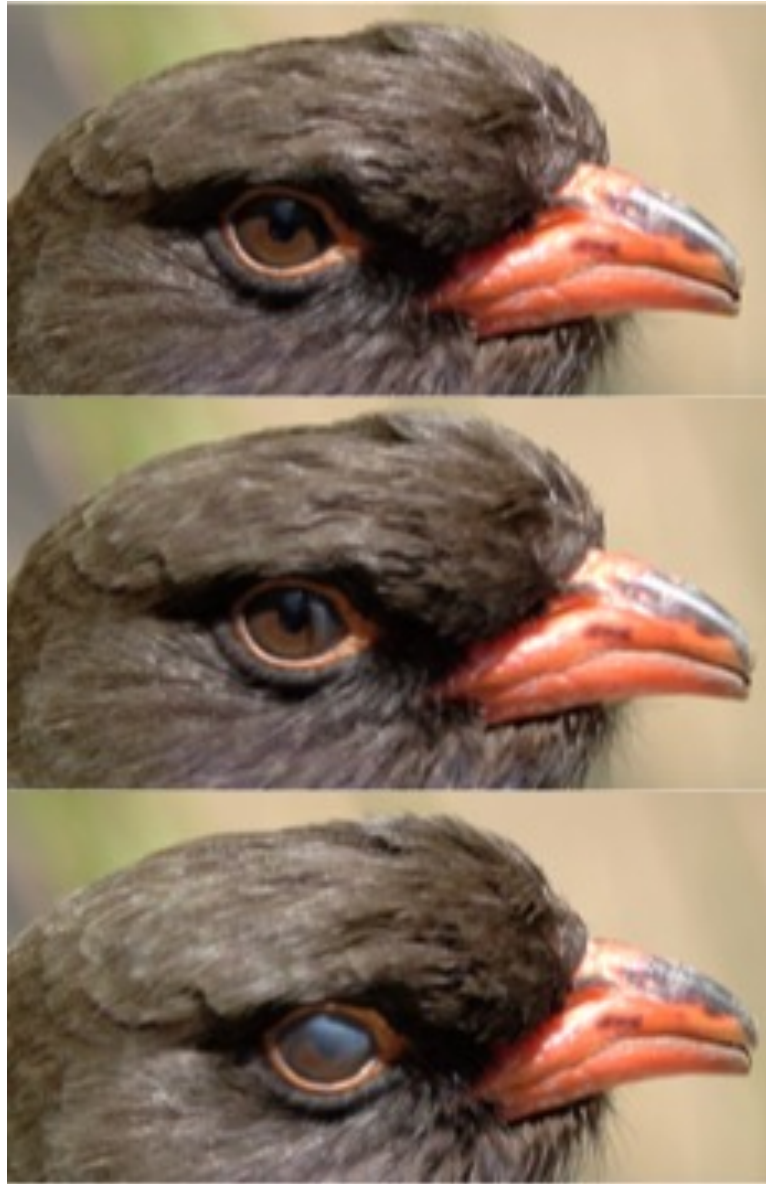
Oriental dollarbird (*Eurystomus orientalis*)

Nictitating membrane blink on head turn









Blue-bellied roller (*Coracias cyanogaster*)

Nictitating membrane blink on head turn



Family Laridae

European herring gull (*Larus argentatus*)

Nictitating membrane blink on head turn



Elevation of lower lid with drowsiness



Juvenile

Nictitating membrane blink



Great black-backed gull (*Larus marinus*)

Nictitating membrane blink



Nictitating membrane blink



Black-headed gull (*Chroicocephalus ridibundus*)

Nictitating membrane blink on head turn



Greater crested tern (*Thalasseus bergii*)

Nictitating membrane blink on head turn



Mating dance





Nictitating membrane blink on head turn



Both lids tightly together in sleep



Both lids tightly together with preening



Nictitating membrane blink on head turn



Hartlaub's gull (*Chroicocephalus hartlaubi*)

Red rimmed eyelids



Black-legged kittiwake (*Rissa tridactyla*)



Inca tern (*Larosterna inca*)

Nictitating membrane blink on head turn



Nictitating membrane blink on head turn in a juvenile



Nictitating membrane blink on head turn



Caspian tern (*Hydroprogne caspia*)



White tern (*Gygis alba*)

Lower lid elevation with drowsiness



White-fronted tern (*Sterna striata*)

Lower lid elevation with preening



Pacific gull (*Larus pacificus*)

Nictitating membrane blink





Nictitating membrane blink



Eye movement

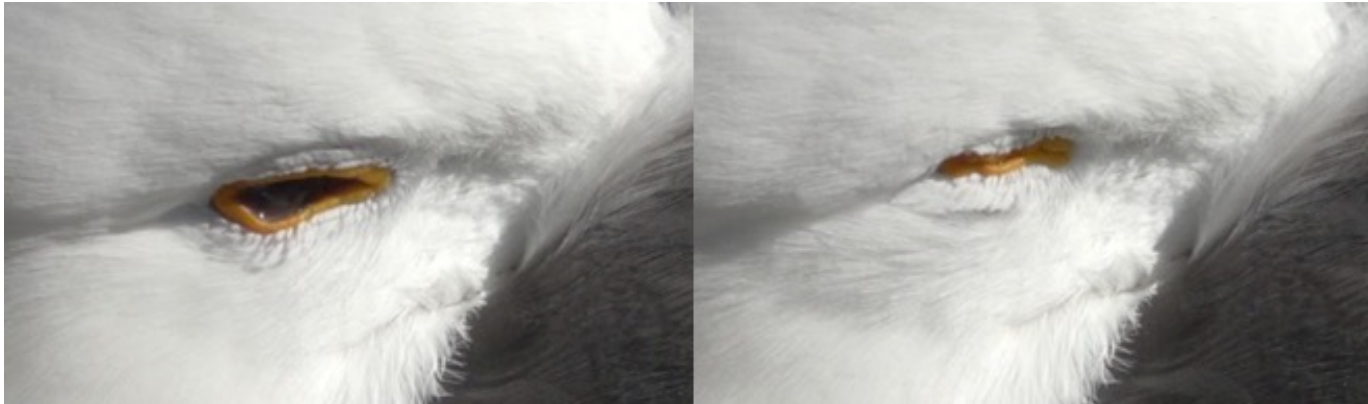


Nictitating membrane blink



Kelp gull (*Larus dominicanus*)

Lower lid elevation with sleep



Juvenile begging



Nictitating membrane blink during preening



Juvenile. Nictitating membrane blink



Silver gull (*Chroicocephalus novaehollandiae*)

Nictitating membrane blink



Nictitating membrane blink



Lower lid elevation with drowsiness



Lower lid elevation with preening



Family Scolopacidae

Common greenshank (*Tringa nebularia*)

Upper and lower lids come together on head turn



Common redshank (*Tringa totanus*)

Juvenile. Upper and lower lid come together on head turn



Red knot (*Calidris canutus*)?

Upper lid blink



Far Eastern curlew (*Numenius madagascariensis*)

Sustained lower lid blink – even with a long bill



Family Recurvirostridae

Pied avocet (*Recurvirostra avosetta*)

Upper lid blink on head turn



Upper lid blink on head turn



Red-necked avocet (*Recurvirostra novaehollandiae*)

Upper lid blink



Unknown juvenile wader

Upper and lower lids come together on preening



Lower lid rises in sleep



Black-winged stilt (*Himantopus himantopus*)

Possibly nictitating membrane blink and lowering of inner part of upper lid but head tilted



Elevation of lower lid during preening



Juvenile. Elevation of lower lid during preening



Family Alcidae

Common murre or common guillemot (*Uria aalge*)

Nictitating membrane blink on head turn in a juvenile



No sustained elevation of lower lid during preening



Nictitating membrane blink with narrowing of the palpebral fissure on head turn in a juvenile.





Nictitating membrane blink with elevation of the lower lid on head turn in a juvenile



Tufted puffin (*Fratercula cirrhata*)

Nictitating membrane blink with narrowing of the palpebral fissure on head turn



Nictitating membrane blink with narrowing of the palpebral fissure on head turn

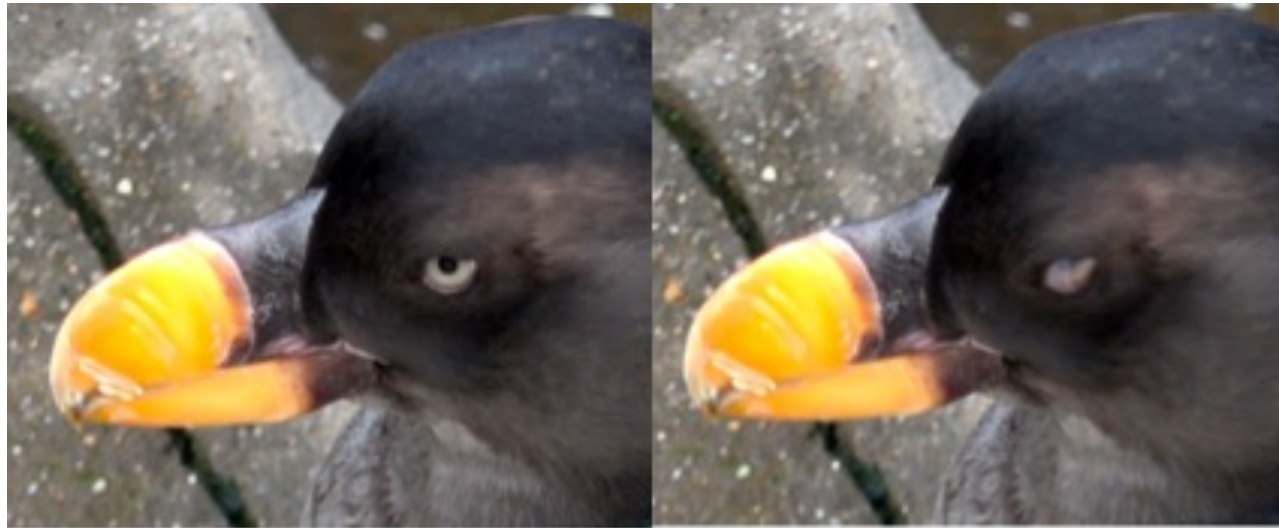




No blink with head clear of feathers in preening.



Predominately upper lid blink when head brushes feathers in preening.



Nictitating membrane blink on head turn.

Family Charadriidae

Spur-winged lapwing (*Vanellus spinosus*)



Masked lapwing (*Vanellus miles*)

Nictitating membrane blink on head turn



Nictitating membrane blink on head turn



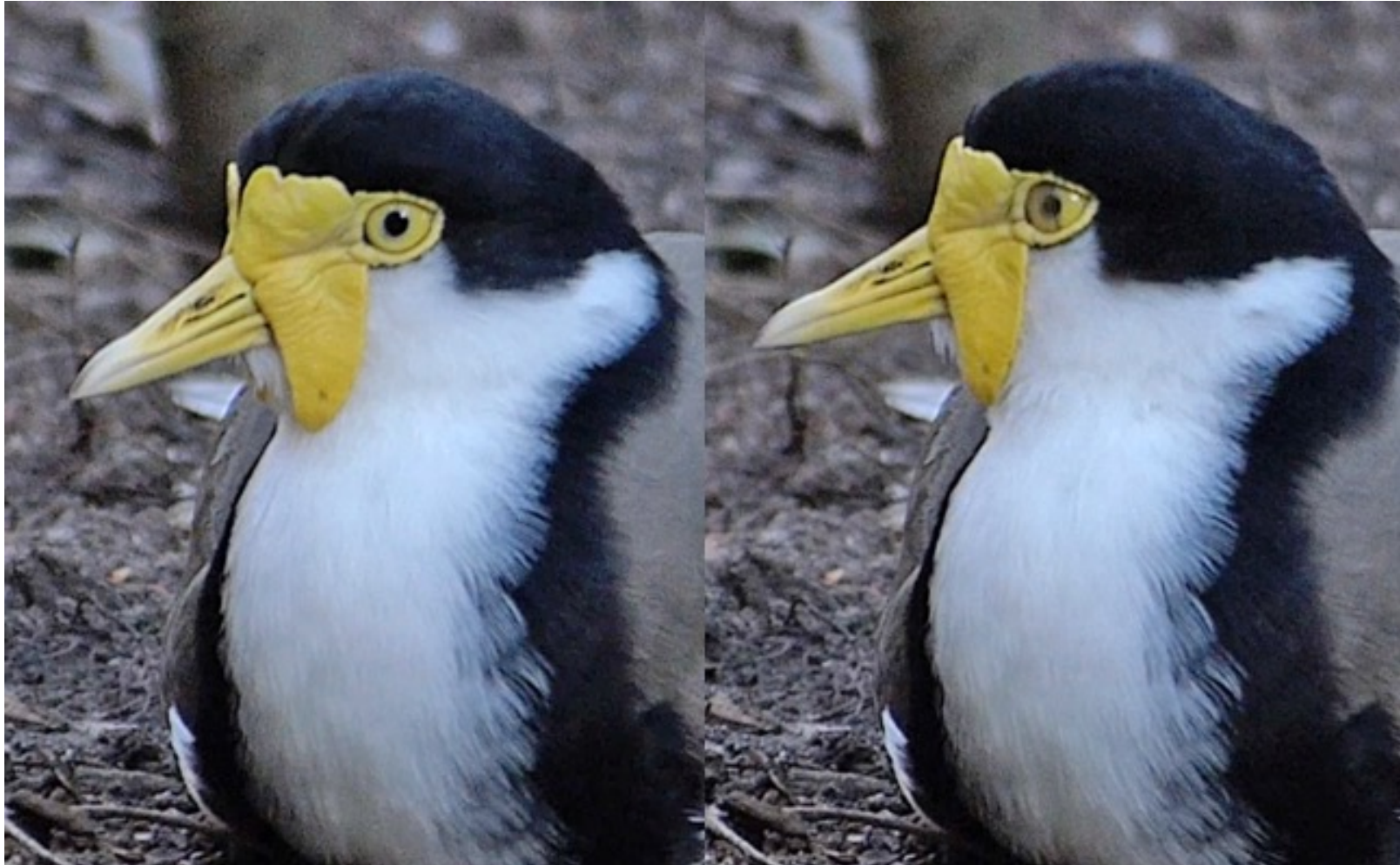
Nictitating membrane blink and slight elevation of lower lid on pecking



Nictitating membrane blink with slight lowering of inner part of upper lid



Nictitating membrane blink on head turn



Lower lid elevation with preening



Banded lapwing (*Vanellus tricolor*)

Nictitating membrane blink with elevation of lower lid



Nictitating membrane blink on head turn



Nictitating membrane blink with elevation of lower lid



Nictitating membrane blink with elevation of lower lid



Black-fronted dotterel (*Elseyornis melanops*)

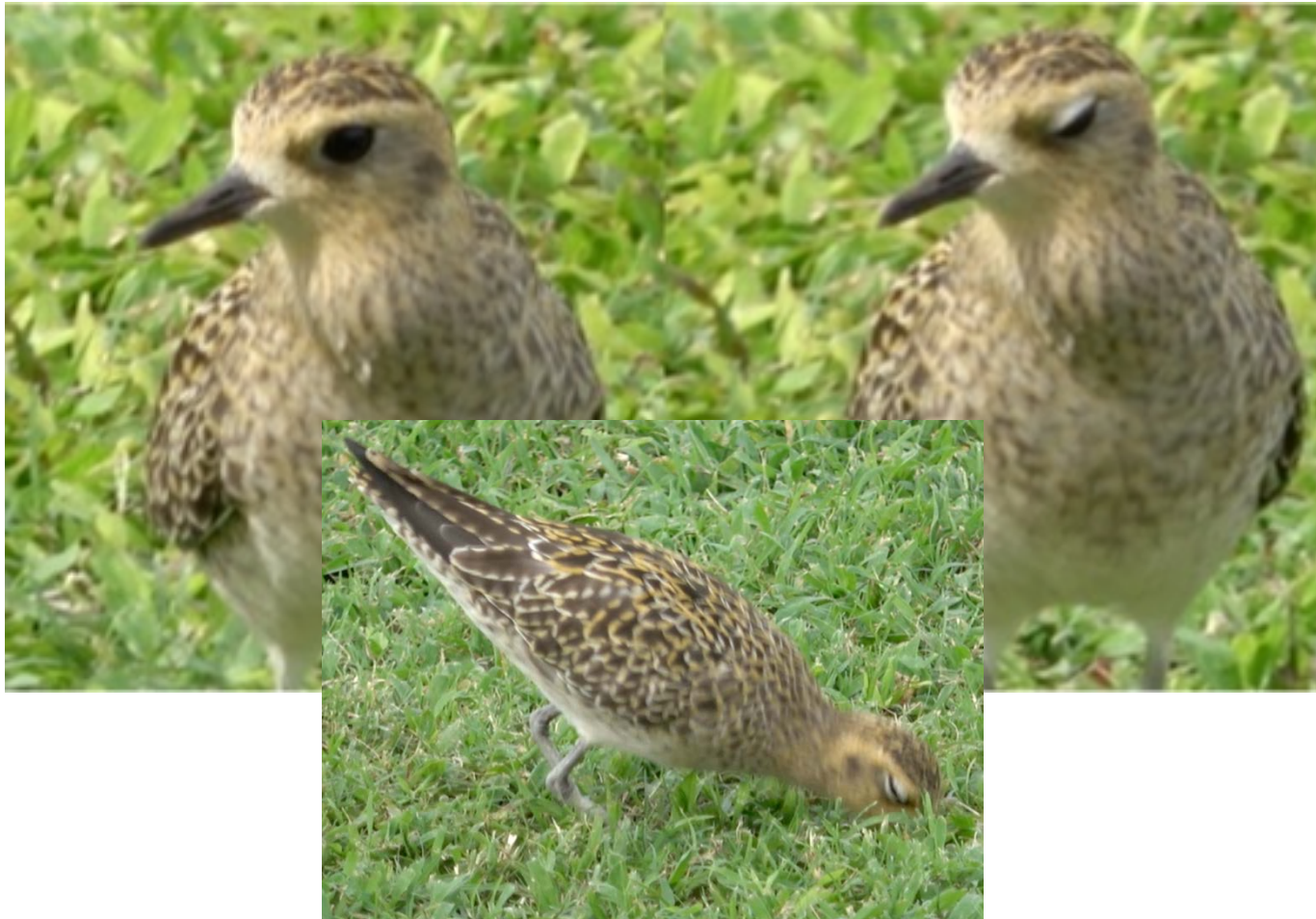
Head turn with no blink



Pacific golden plover (*Pluvialis fulva*)

Upper lid blink on head turn

Upper lid blink



on pecking

Lesser sand plover (*Charadrius mongolus*)

Nictitating membrane blink with slight lowering of upper lid on head turn



Hooded plover (Thinornis cucullatus)



Family Jacanidae

Comb-crested jacana (*Irediparra gallinacea*)

Nictitating membrane blink with lowering of the upper lid on head turn

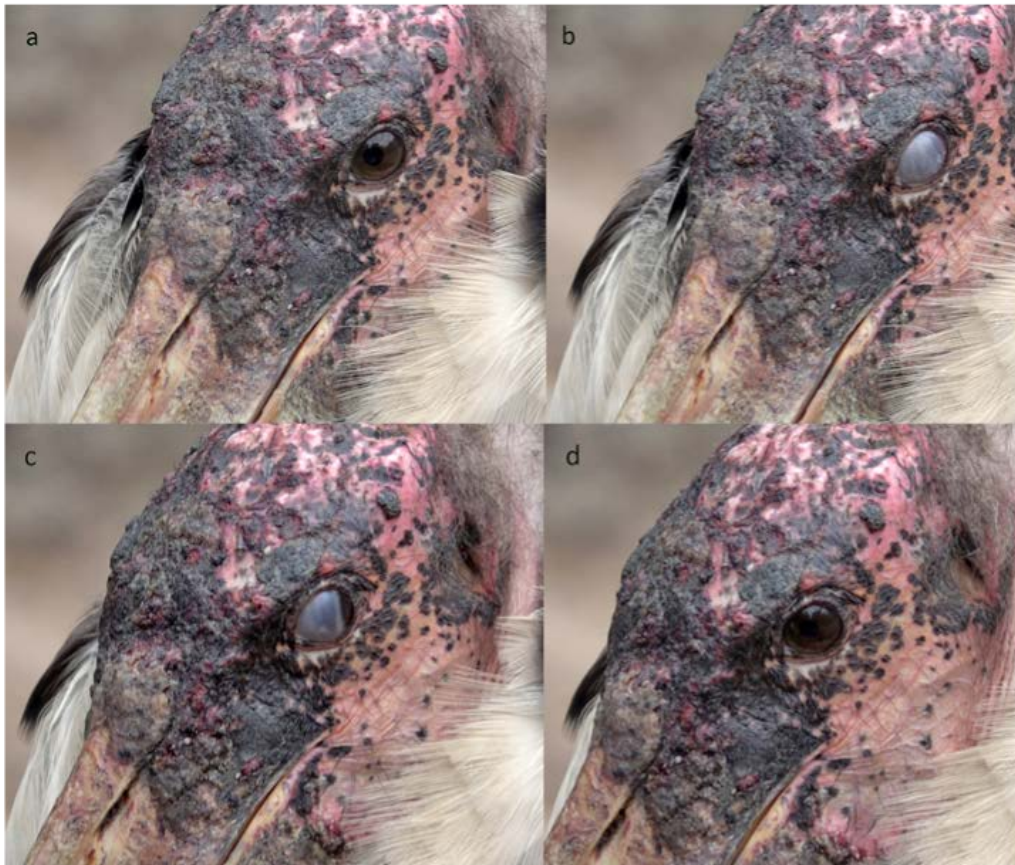


Order Ciconiiformes

Family Ciconiidae

Marabou stork (*Leptoptilos crumenifer*)

Nictitating membrane blink on head turn



a) Forward gaze. b) Upper lid moves out on downward gaze.

Nictitating membrane blink



Eye and upper lid movement



Nictitating membrane blink with slight globe retraction



Nictitating membrane blink with almost no lowering of upper lid



Nictitating membrane blink with slight lowering of upper lid



Nictitating membrane blink



Yellow-billed stork (*Mycteria ibis*)

Eye looks up

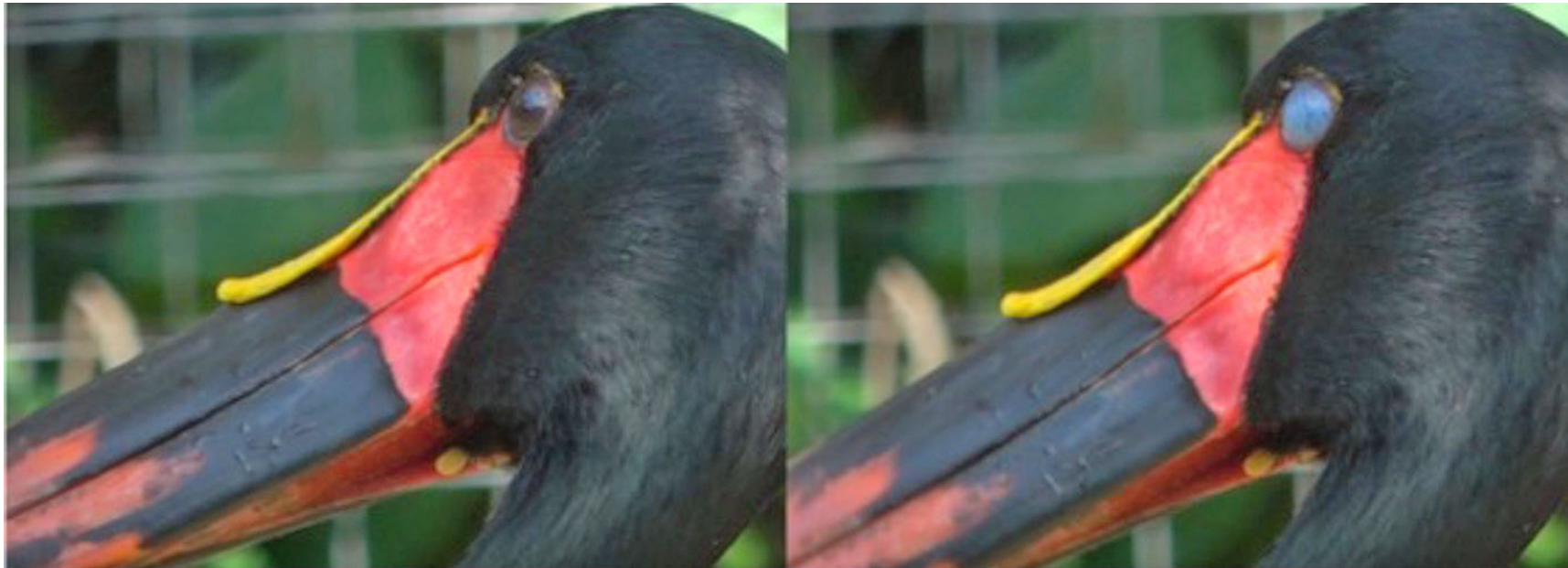


Nictitating membrane blink with head movement



Saddle-billed stork (*Ephippiorhynchus senegalensis*)

Nictitating membrane blink with head movement



Brief nictitating membrane blink on pecking



Nictitating membrane blink with head movement



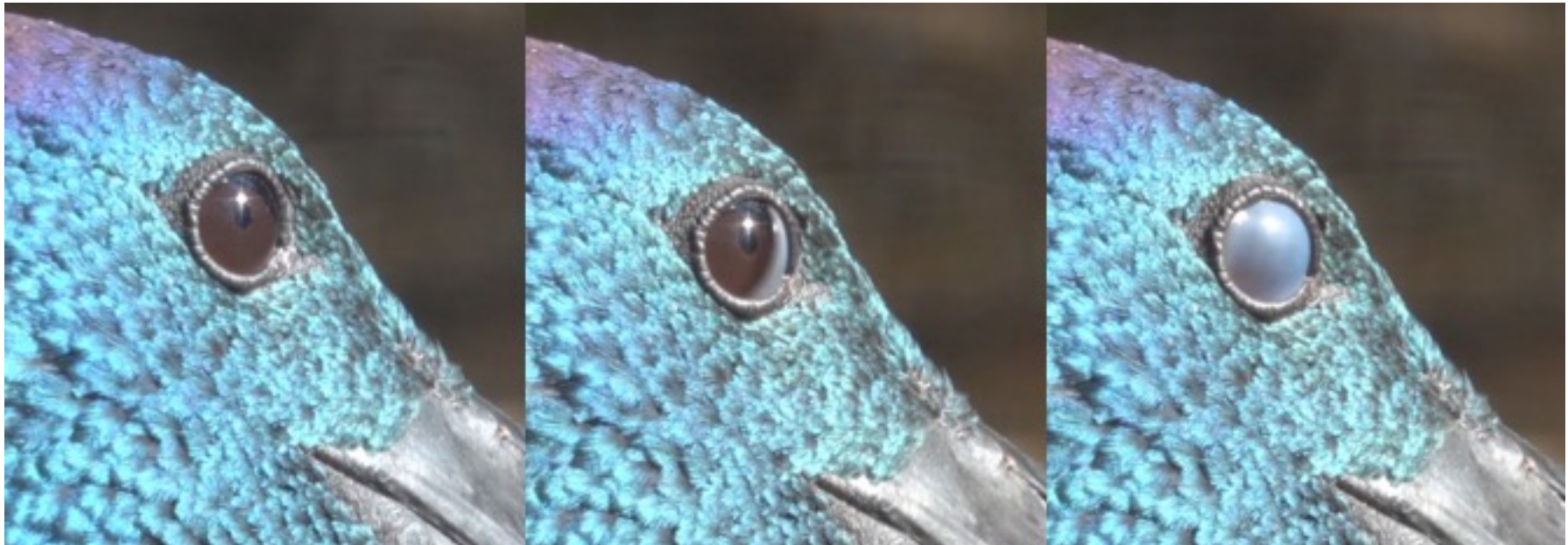
Storm's stork (*Ciconia stormi*)

Nictitating membrane blink with slight lowering of inner part of upper lid on head turn



Black-necked stork (*Ephippiorhynchus asiaticus*)

Male. Nictitating membrane blink on head turn



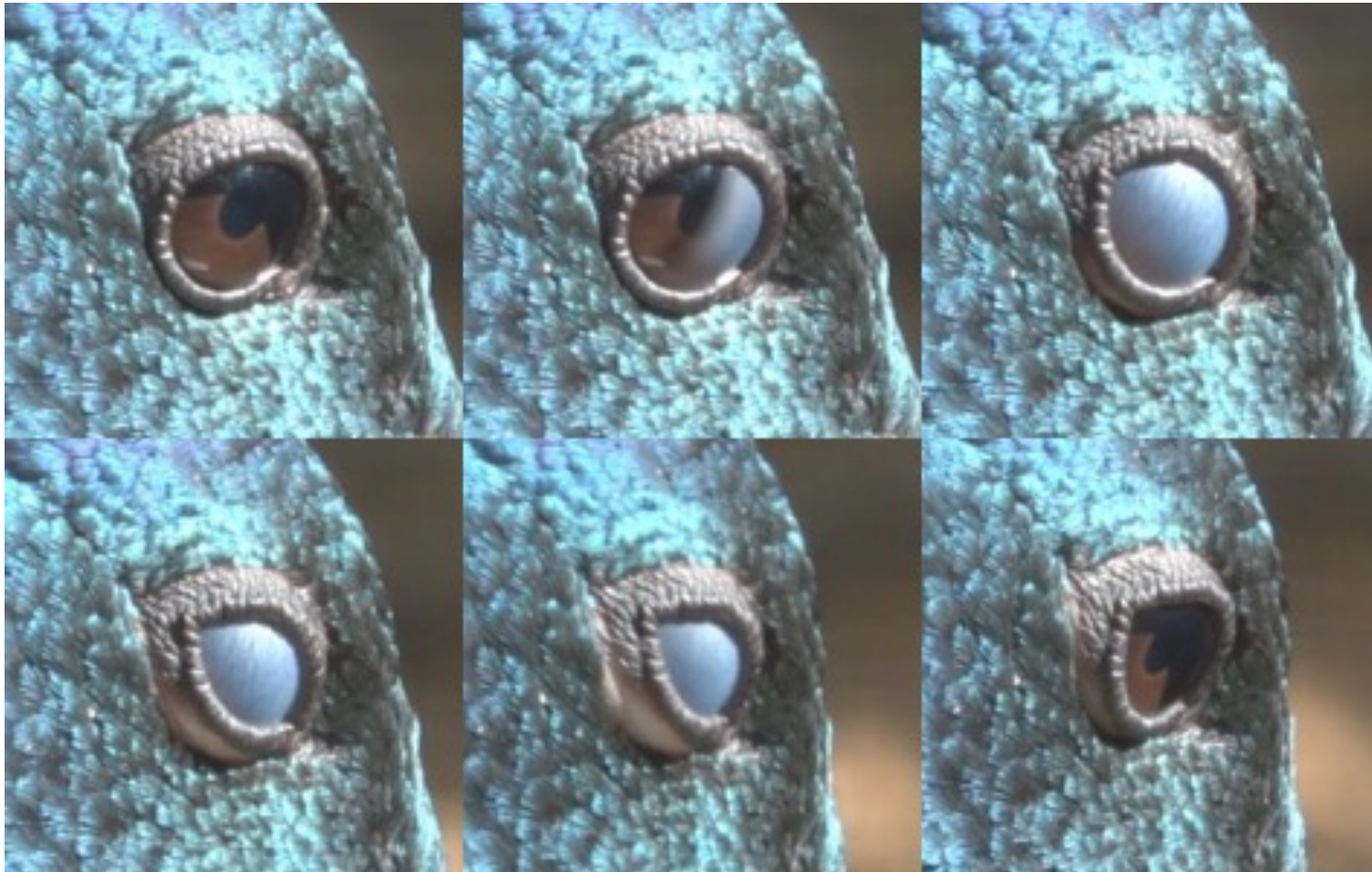
Nictitating membrane blink on head turn



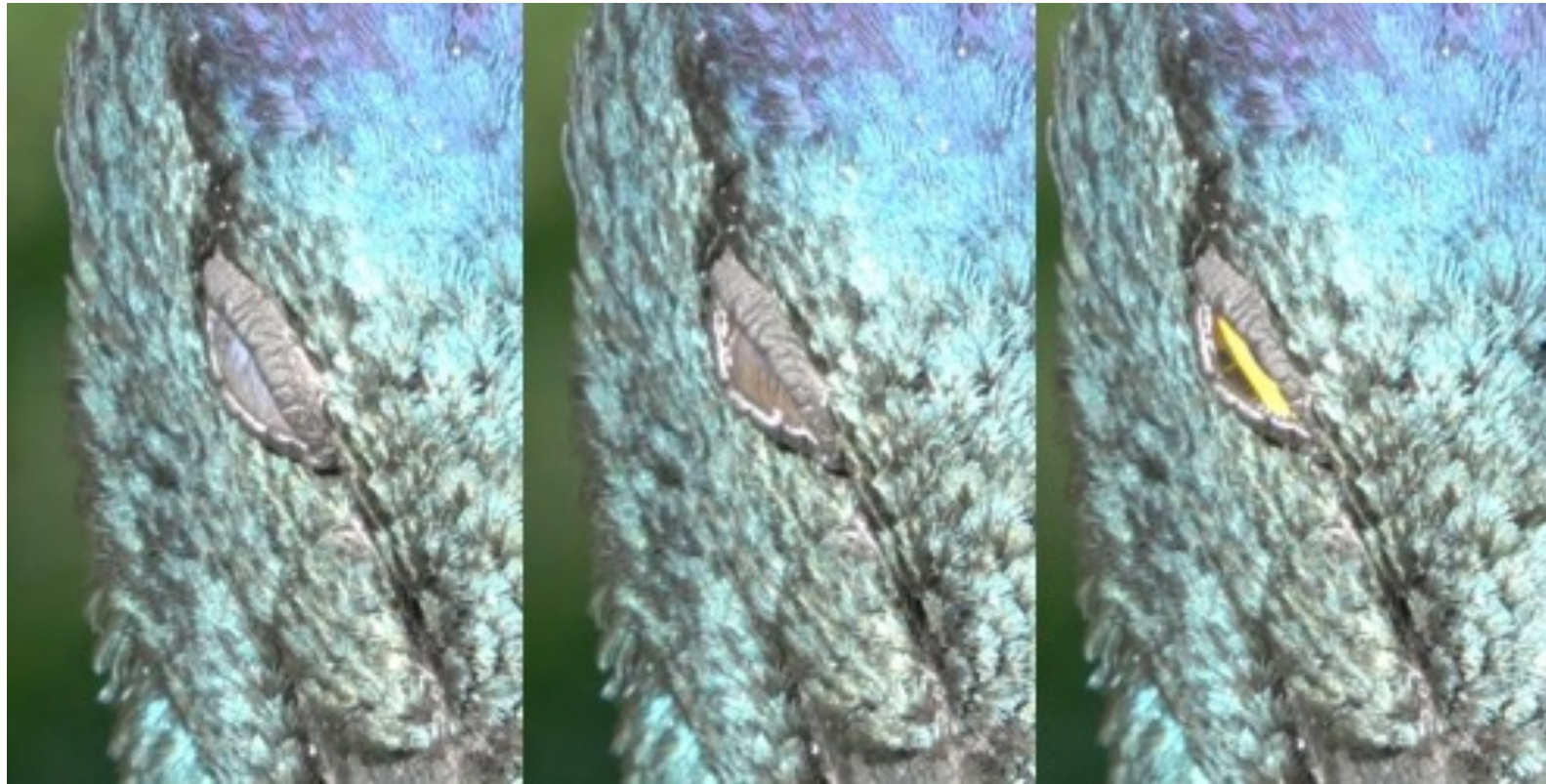
Nictitating membrane blink on head turn



Male. Nictitating membrane blink with elevation of lower lid



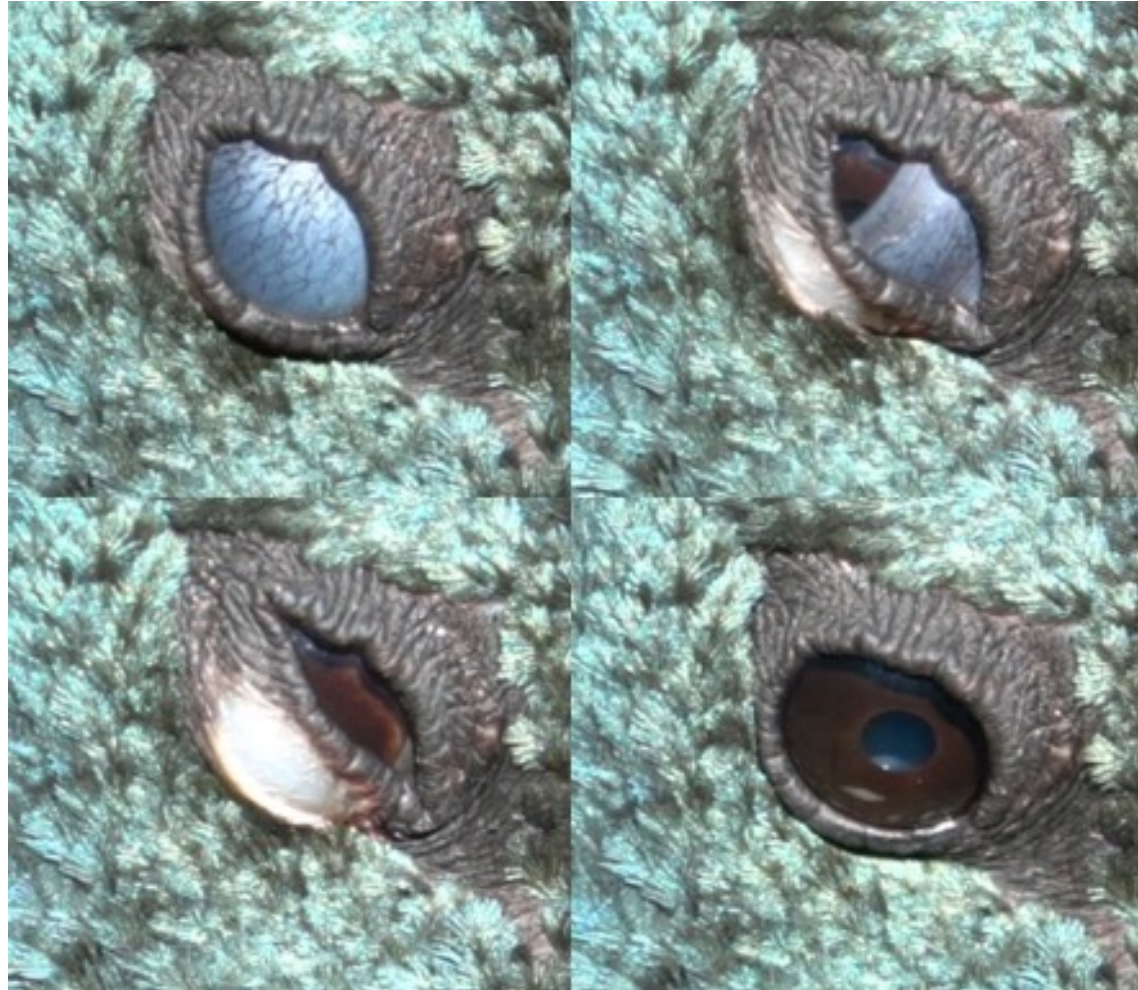
Female. Nictitating membrane blink with elevation of lower lid



Vascular nictitating membrane



Vascular nictitating membrane



Nictitating membrane blink



Nictitating membrane blink



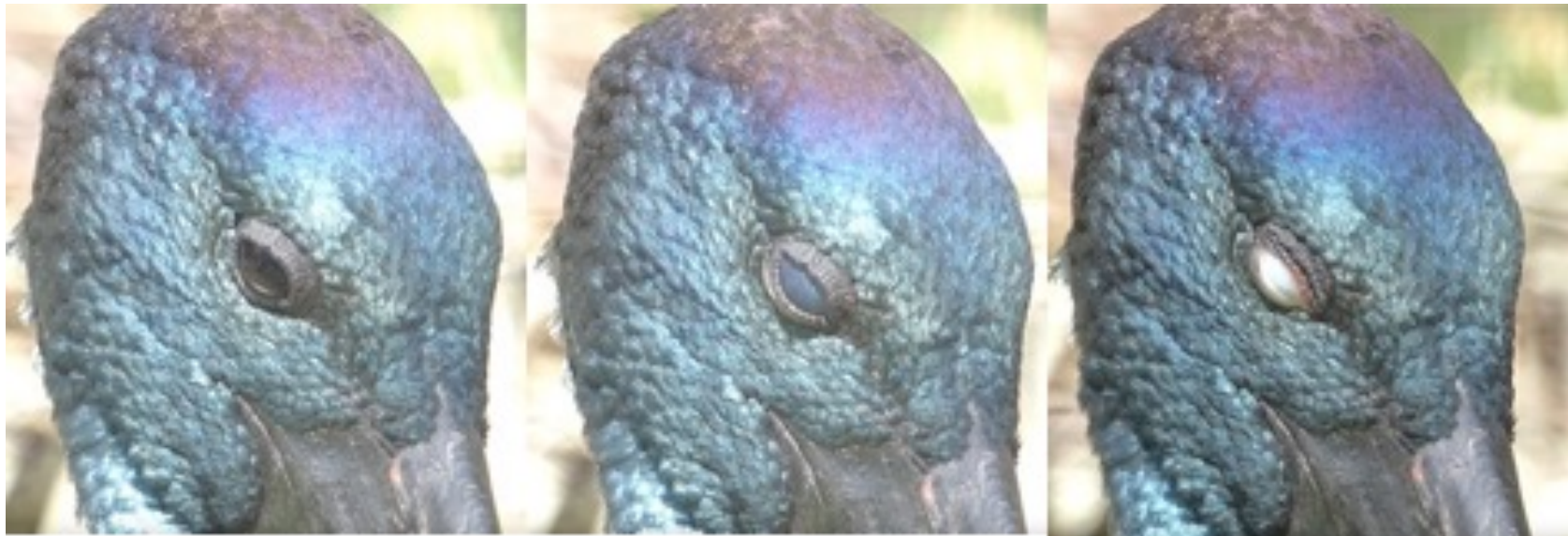
Eye movement



Nictitating membrane blink



Nictitating membrane and lower lid blink



Nictitating membrane and slight upper lid blink



Nictitating membrane and full lower lid blink

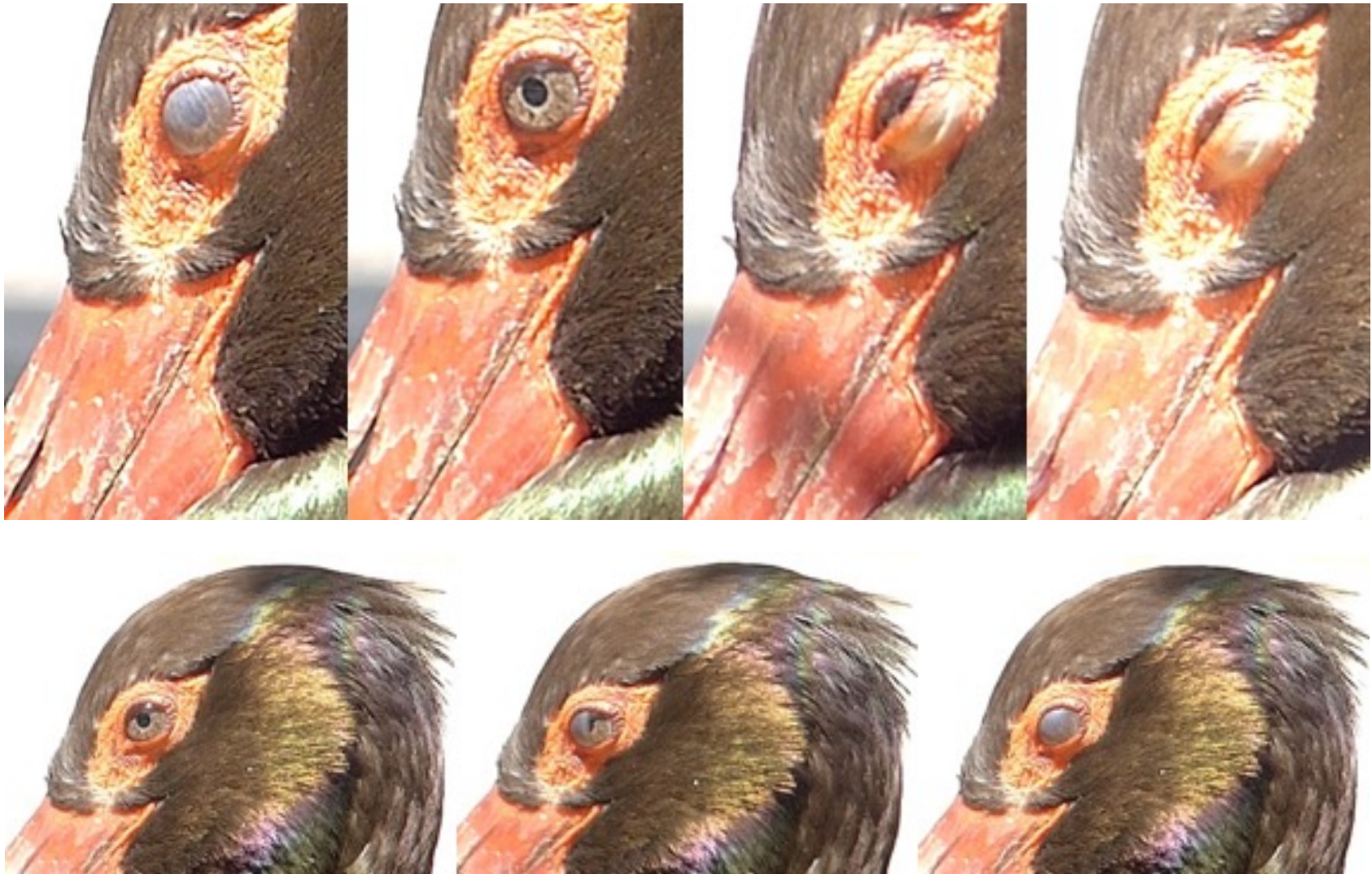


Black stork (*Ciconia nigra*)

Nictitating membrane blink

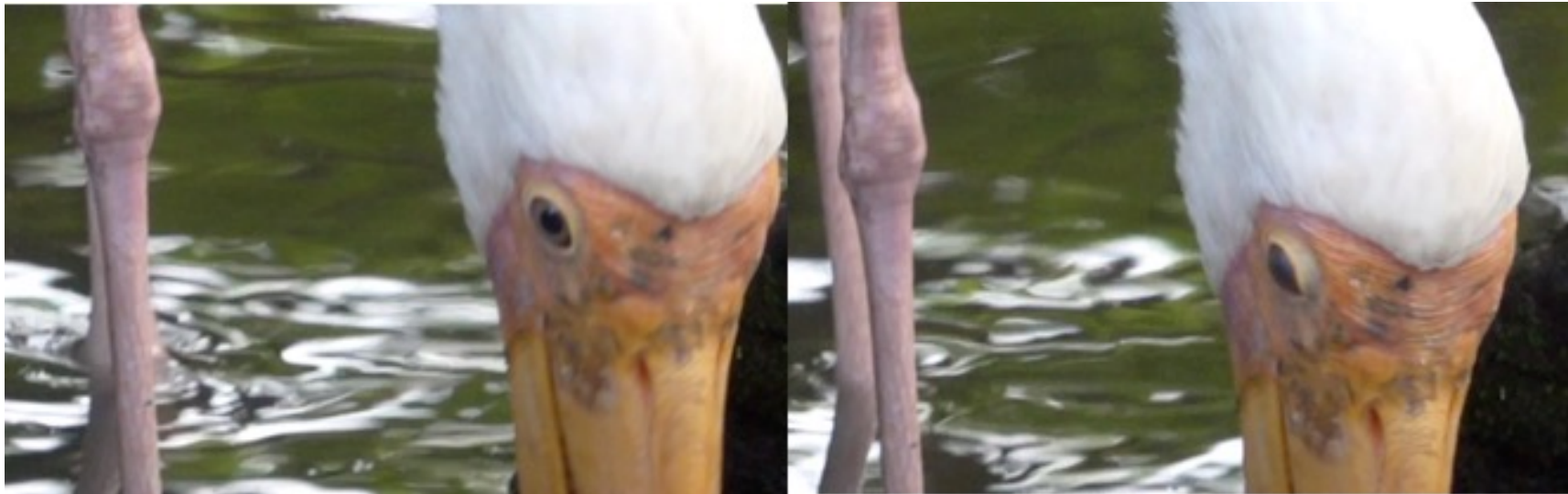


Nictitating membrane blink followed by lower lid blink with drowsiness



Milky stork (*Mycteria cinerea*)

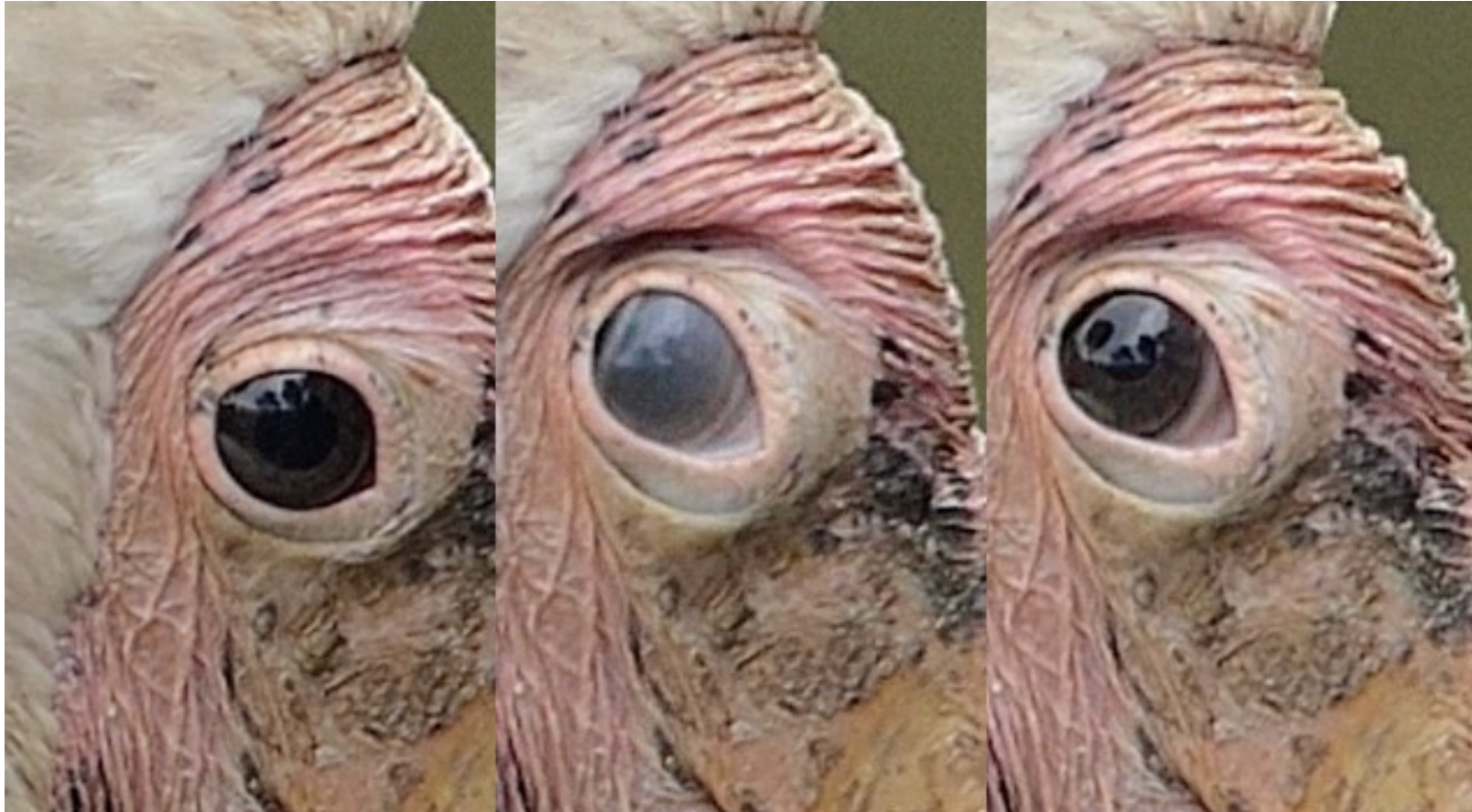
Nictitating membrane blink with slight lowering of upper lid



Painted stork (*Mycteria leucocephala*)
Nictitating membrane blink on eye movement

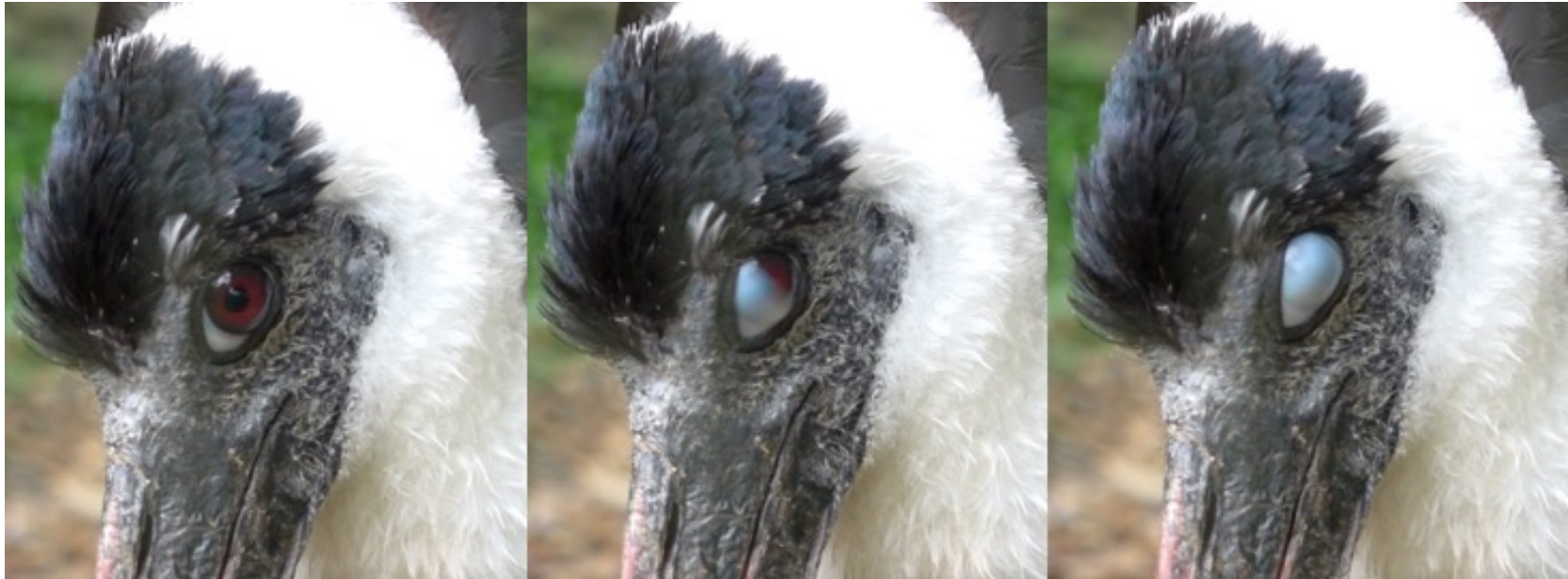


Nictitating membrane blink on eye movement - which pulls upper lid down



Woolly-necked stork (*Ciconia episcopus*)

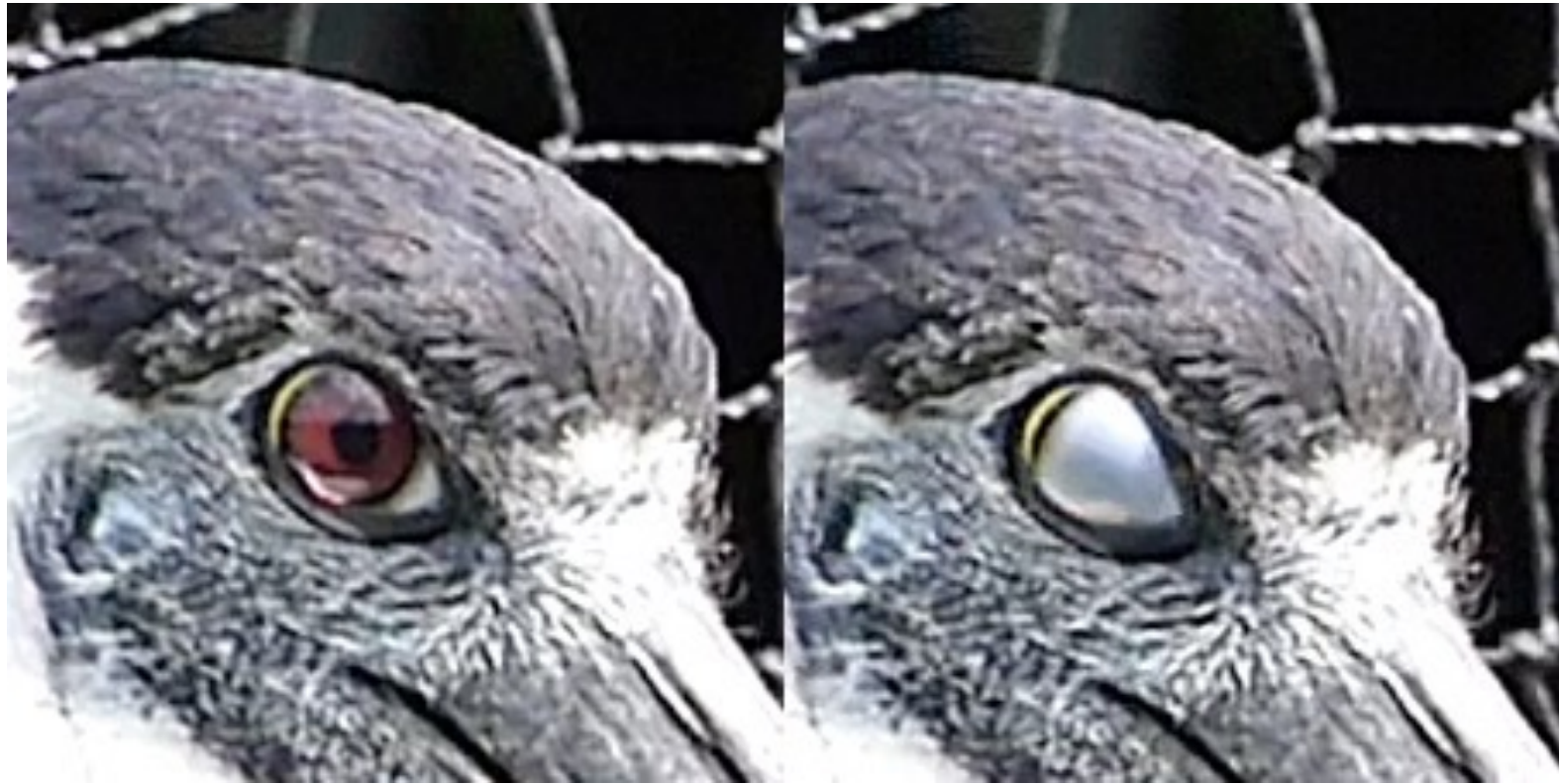
Nictitating membrane blink with slight lowering of inner part of upper lid on head turn



Nictitating membrane blink with elevation of white lower lid



Nictitating membrane blink



Abdim's stork (*Ciconia abdimii*)

Nictitating membrane blink with slight lowering of inner part of upper lid



Nictitating membrane blink with slight lowering of inner part of upper lid



Nictitating membrane blink



White stork (*Ciconia ciconia*)

Nictitating membrane blink



Nictitating membrane blink



Nictitating membrane blink on head and eye movement



Family Ardeidae

Great egret (*Ardea alba*)

Nictitating membrane blink with preening



Nictitating membrane blink with preening



Nictitating membrane blink on head and eye movement



Order Columbiformes

Family Columbidae

Mindanao bleeding-heart (*Gallicolumba crinigera*)

Nictitating membrane and upper lid blink



Topknot pigeon (*Lopholaimus antarcticus*)

Nictitating membrane and upper lid blink



* *Drowsy: Nictitating membrane, upper and lower lid blink*



Green imperial pigeon (Ducula aenea)

Upper lid blink



Upper and lower lids come together during preening



Brown cuckoo-dove (*Macropygia phasianella*)

Upper lid blink



Head turn with no blink



Red sclera



Upper lid blink on head turn



Domestic pigeon (*Columba livia domestica*)

Racing pigeon. Upper lid blink on head turn



Feral pigeon. Upper lid and nictitating membrane blink on head turn



Feral pigeon. Lower then upper lid blink with drowsines



Feral pigeon. Upper lid blink



Feral pigeon. Lower then upper lid blink with drowsiness



Upper lid blink while pecking



Upper and lower lids come together while pecking



Feral pigeon. Upper and lower lids come together leaving a gap (squinting) with pecking



African mourning dove (*Streptopelia decipiens*)

Upper and lower lid blink



a) Pre-blink. b) Upper lid descends to mid-pupil level. Lower lid rises minimally. c) Post-blink at end of head movement.

Barbary dove (Streptopelia risoria)

Squinting while preening



Upper lid blink on head turn



Domesticated pigeon. Upper lid descends during pecking

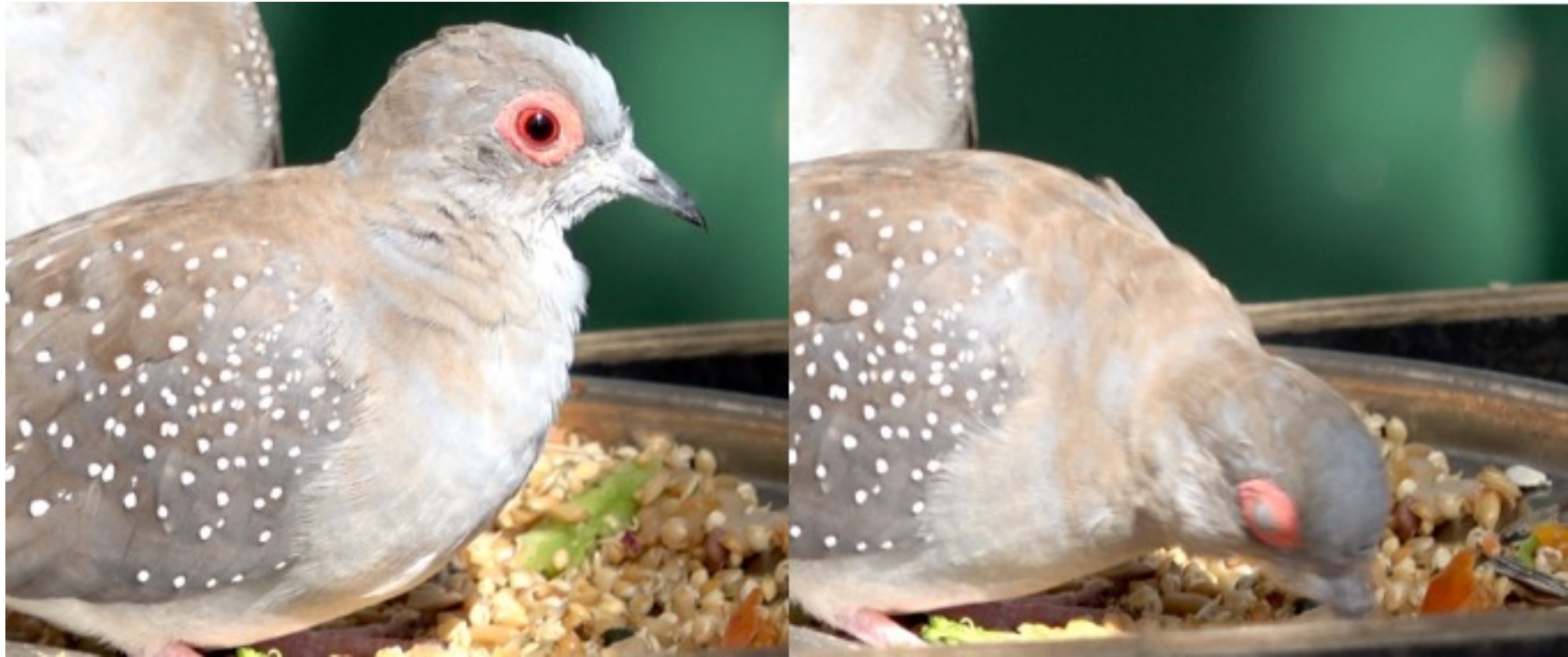


Diamond dove (*Geopelia cuneata*)

Drowsy. Firstly, upper lid descends then lower lid rises to meet it



Sustained upper lid blink during pecking. Note red iris and surrounding skin



Upper lid blink



Lower then upper and lower lid blink with drowsiness



Upper lid blink



Blink involving upper and lower lids



Mourning dove (*Zenaida macroura*)

Blinking with upper and lower lids on pecking



Laughing dove (*Spilopelia senegalensis*)

Squinting while pecking



Upper lid blink on head turn



Speckled pigeon (*Columba guinea*)

Pupillary constriction. Note patch of black below the pupil - heterochromia iridis (Morris & Morris, 2014).



Upper lid and nictitating membrane blink

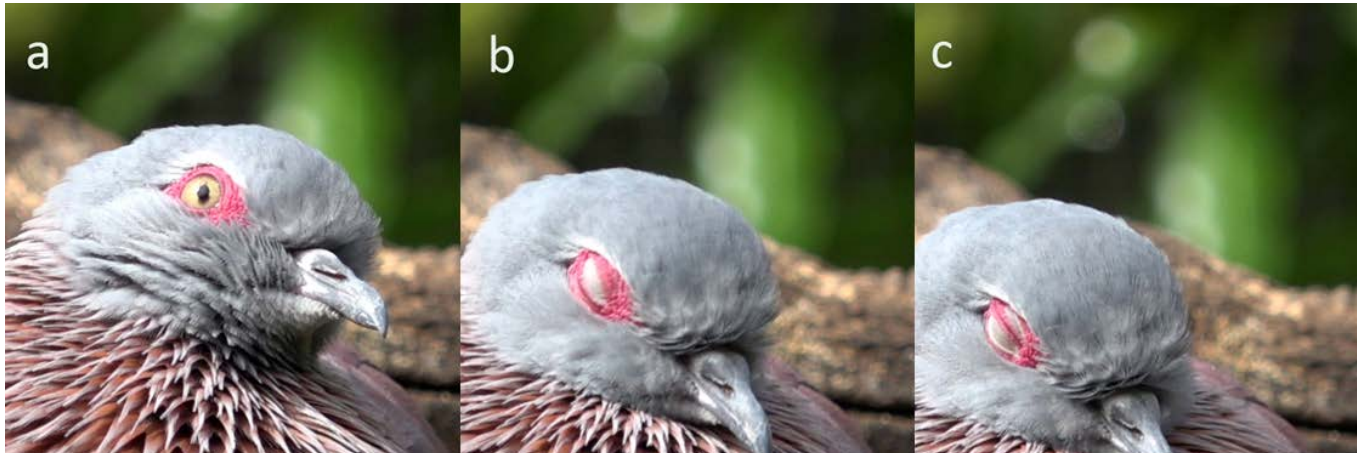


a) Pre-blink. b) Semi-translucent nictitating membrane descends to the pupil. c) Nictitating membrane covers cornea. Upper lid descends.

Upper lid blink on head turn



Upper then lower lid blink. Drowsy



Drowsy. a) Pre-blink. b) Semi-translucent upper lid descends fully on head movement. c) Semi-translucent lower lid pushes upper lid up.

Sulawesi ground dove (*Gallicolumba tristigmata bimaculata*)

Head position is unchanged during a stride



African olive pigeon (*Columba arquatrix*)

Blinking with upper lid on head turn



Pheasant pigeon (*Otidiphaps nobilis*)

Red iris



Common emerald dove (*Chalcophaps indica*)

Blinking with upper lid, lower lids and nictitating membrane



Upper lid blink



Lower lid elevated during preening



Cuckoo dove (Genus *macropygia*)

Blinking with upper lid on head turn



Pied imperial pigeon (*Ducula bicolor*)

Upper lid and nictitating membrane blink



Elevation of lower lid with preening



Upper and lower lids come close together without shutting (squinting) while collecting a twig



Torresian imperial pigeon (*Ducula spilorrhoa*)

Lower lid elevation with preening

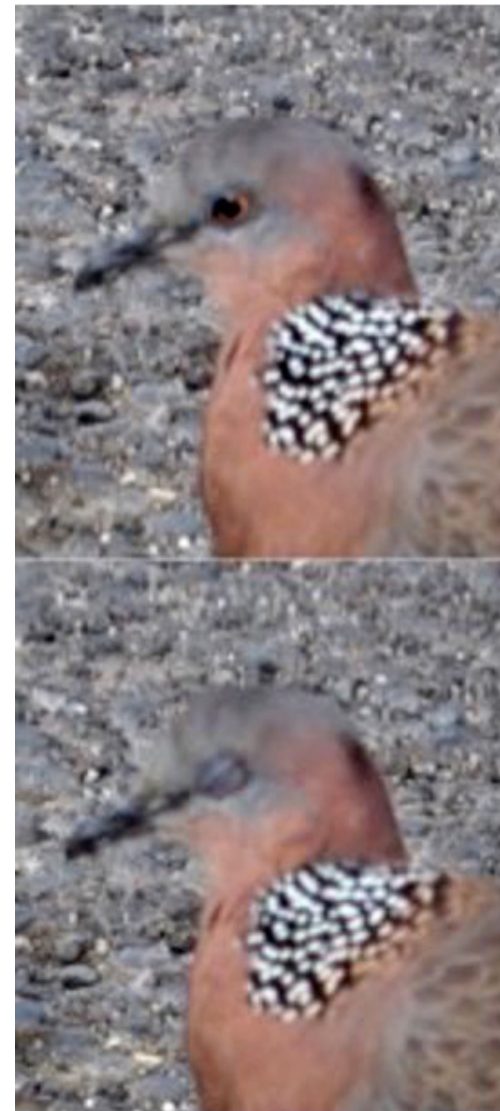


Spotted dove (*Spilopelia chinensis*)

Upper lid blink on head turn



Upper lid then joined by lower lid blink with head still



Upper lid blink on pecking



Upper and lower lid blink on pecking



Upper lid blink



Upper lid blink

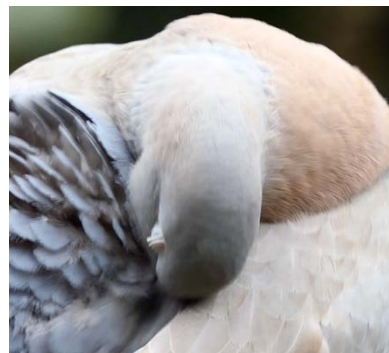


Bar-shouldered dove (*Geopelia humeralis*)

Upper lid blink on head turn



Upper and lower lid blink on preening



White-headed pigeon (*Columba leucomela*)

Nictitating membrane and upper lid blink



Nictitating membrane appears to move in unison with upper lid in upper lid blink



Upper and lower lids move up and down in unison (synergy)

Upper and lower lids come together but do not close (squint)



Lower lid elevation with preening



Orange iris



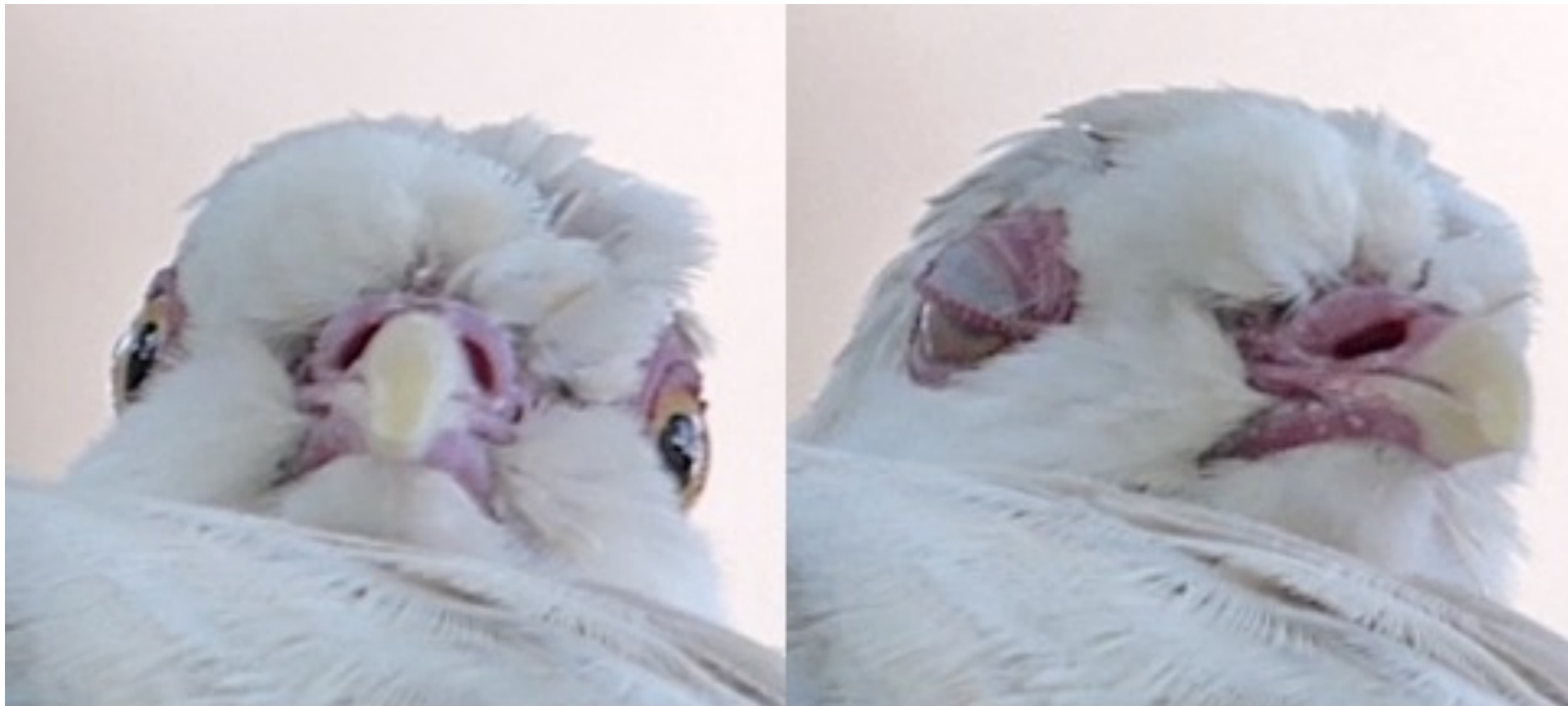
Lower lid elevation with no visible nictitating membrane



Nictitating membrane blink with no involvement of lid

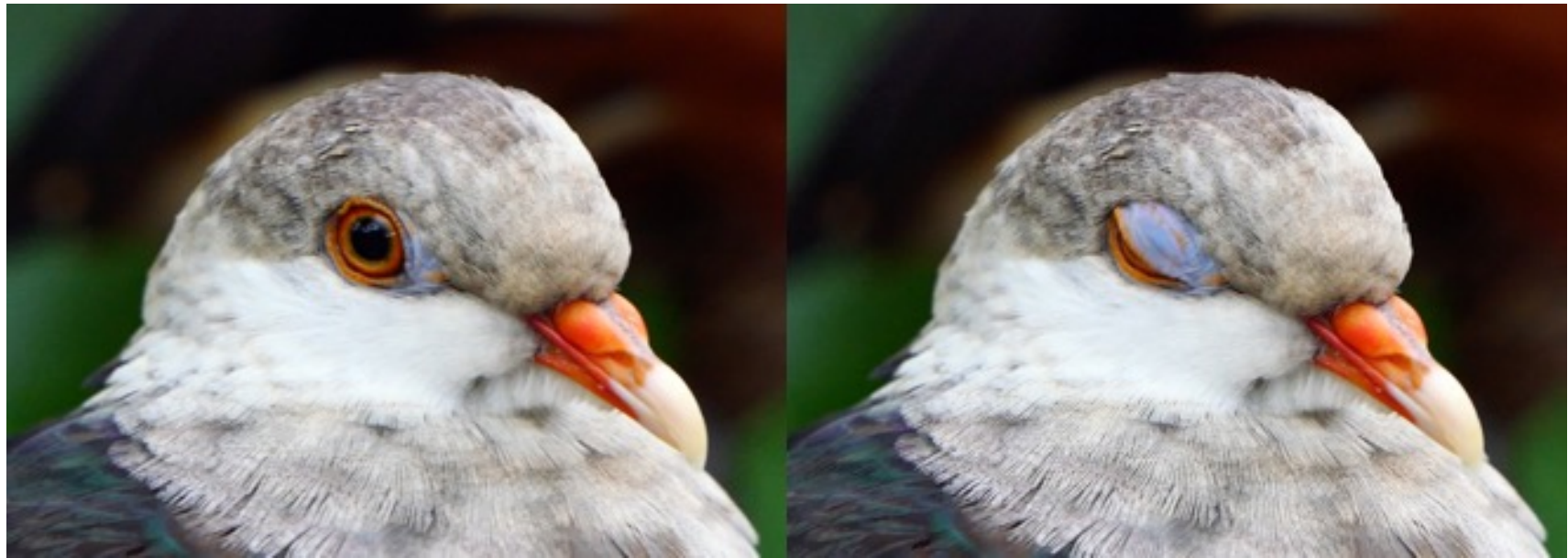


Upper lid and nictitating membrane blink



Pupillary changes





Crested pigeon (*Ocyphaps lophotes*)

Upper and lower lids remain closed throughout the peck



Upper lid blink on head turn



Upper lid blink on pecking



Upper and lower lid blink on pecking



Squint on pecking



Lower lid elevated during preening



Upper lid and nictitating membrane blink



Upper and lower lids closed in sleep



Kererū (*Hemiphaga novaeseelandiae*)

Possible nictitating membrane blink

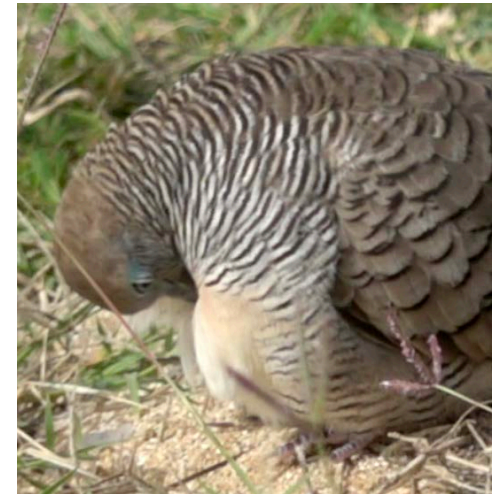


Squint



Zebra dove (*Geopelia striata*)

Upper and lower lid blink on pecking



Lower lid blink on preening.

Courting.



Upper lid blink on head turn



Lower lid elevated on preening



Upper lid lowers, then lower lid rises



Upper lid lowered while ‘anting’



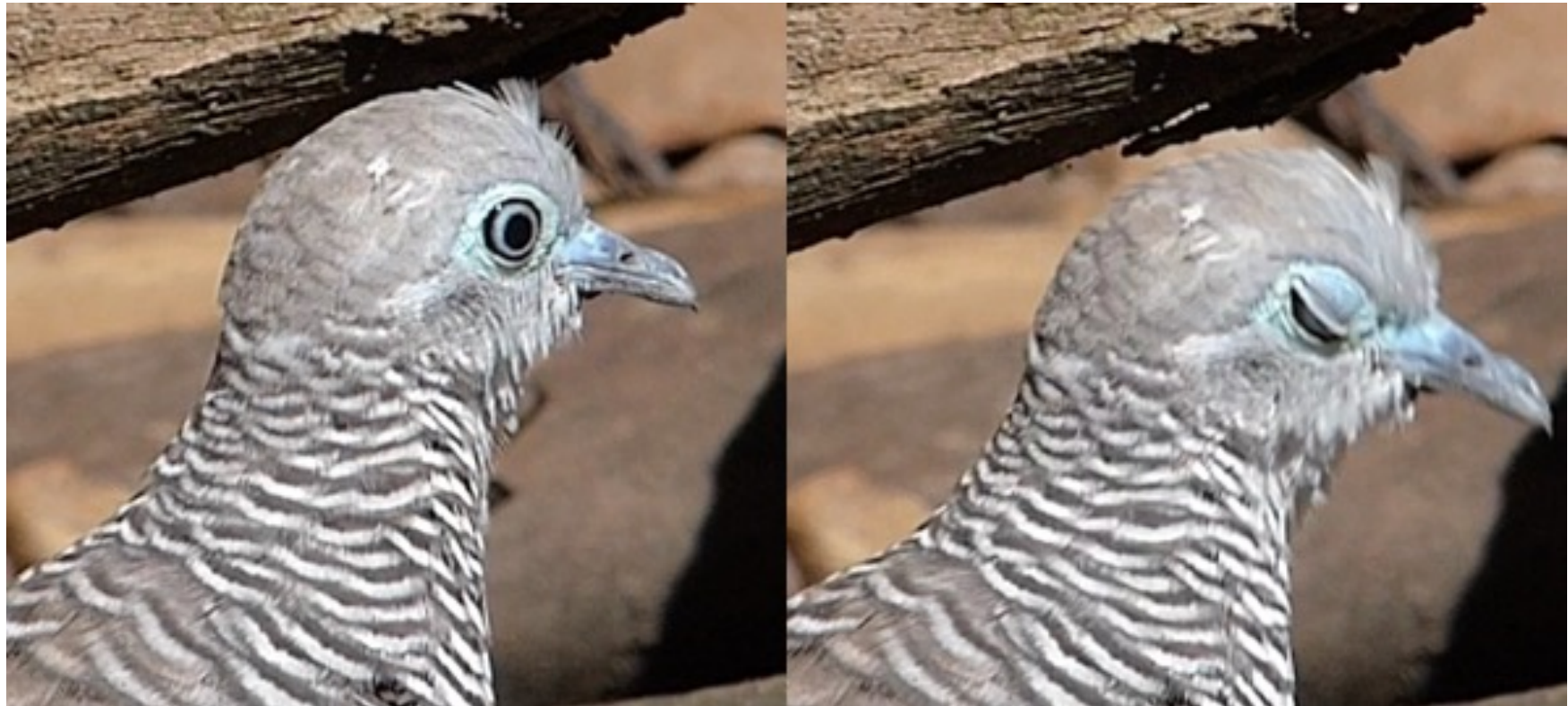
Nictitating membrane blink



Upper lid lowered during pecking feint (pecked thin air)



Full upper lid blink



Brush bronzewing (*Phaps elegans*)

Female and male. Upper lid blink on head turn in male



Male. Upper and lower lid blink on preening



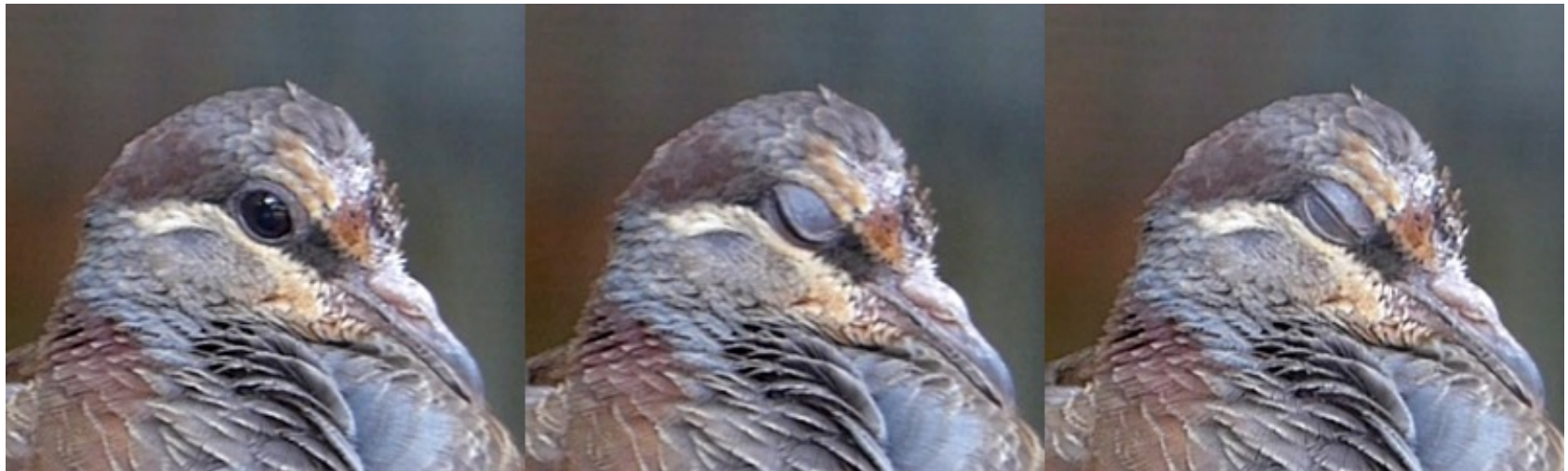
Male. Upper lid blink



Male. Upper and lower lid blink



Upper and lower lid blink



Flock bronzewing (*Phaps histrionica*)

Nictitating membrane blink with narrowing of palpebral fissure



Upper eyelid blink on head turn



Modena pigeon (*Columba livia domesticus*)

Nictitating membrane and lower lid blink



Nictitating membrane crosses and lower lid rises. Then nictitating membrane withdraws and lower lid falls.

Ruddy ground dove (*Columbina talpacoti*)

Upper and lower lid blink while pecking



Superb fruit dove (*Ptilinopus superbus*)

Upper and lower lids come together during preening



Upper lid blink on head turn



Blink involving inner part of upper lid and nictitating membrane



Pupillary changes



Blink involving synchronous movement of upper and lower lids towards each other



Rose-crowned fruit dove (*Ptilinopus regina*)

Upper lid blink on head turn



Upper lid blink on preening



Upper lid blink on head turn



Upper and lower lid blink



Wompoo fruit dove (*Ptilinopus magnificus*)

Upper lid blink



Wonga pigeon (*Leucosarcia melanoleuca*)

Upper and lower lid blink



Upper lid blink on head turn



Upper lid blink on head turn





Upper lid blink on head turn



Lower lid blink on preening



Victoria crowned pigeon (*Goura victoria*)

Upper lid and nictitating membrane blink followed by elevation of lower lid



Upper lid and nictitating membrane blink



Upper lid and nictitating membrane blink



Nicobar pigeon (*Caloenas nicobarica*)

Upper lid (coloured white) blink



Upper lid and nictitating membrane blink



Upper lid and nictitating membrane blink



Upper lid and nictitating membrane blink



Head and eye movement



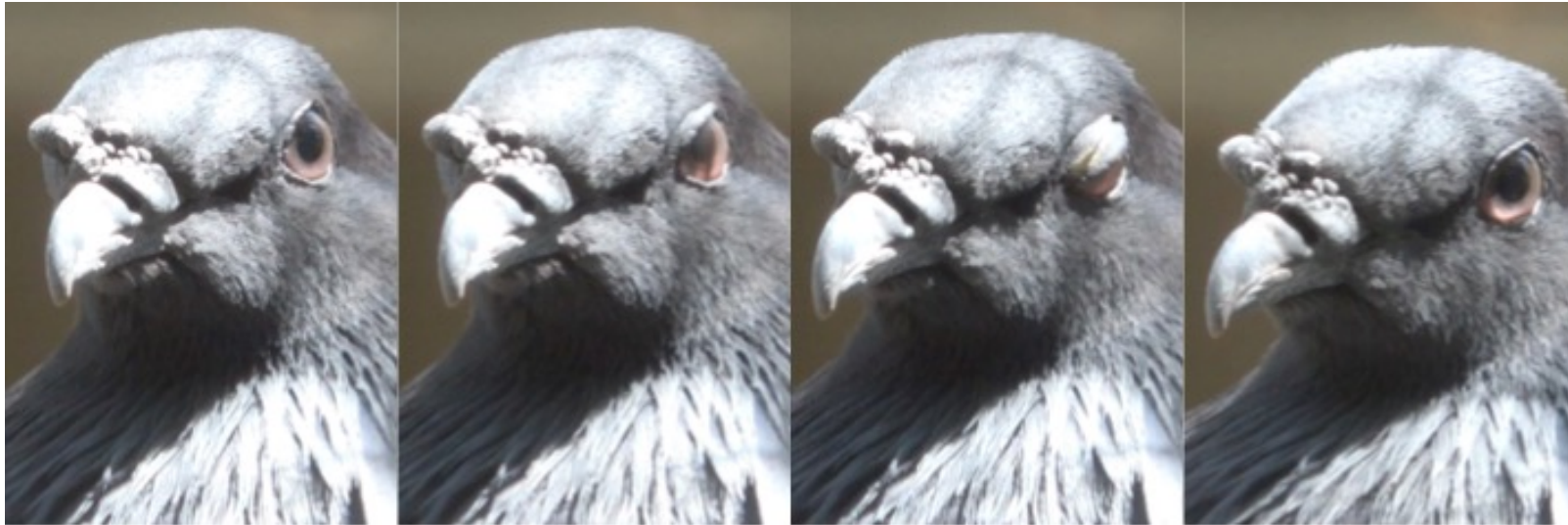
Lower then upper lid blink



Upper and lower lid blink



Nictitating membrane and upper lid blink



Lower and upper lid blink



White-bibbed ground dove (*Pampusana jobiensis*)

Upper lid blink



Upper and lower lid blink - squint



Upper lid blink



Lower lid blink on preening



Squatter pigeon (*Geophaps scripta*)

Upper lid blink



Spinifex pigeon (*Geophaps plumifera*)

Upper and lower lid blink



Lower lid blink



Upper lid blink on head turn



Common wood pigeon (*Columba palumbus*)

Looks like nictitating membrane blink!



Upper lid blink



Upper and lower lid blink (squinting) on pecking

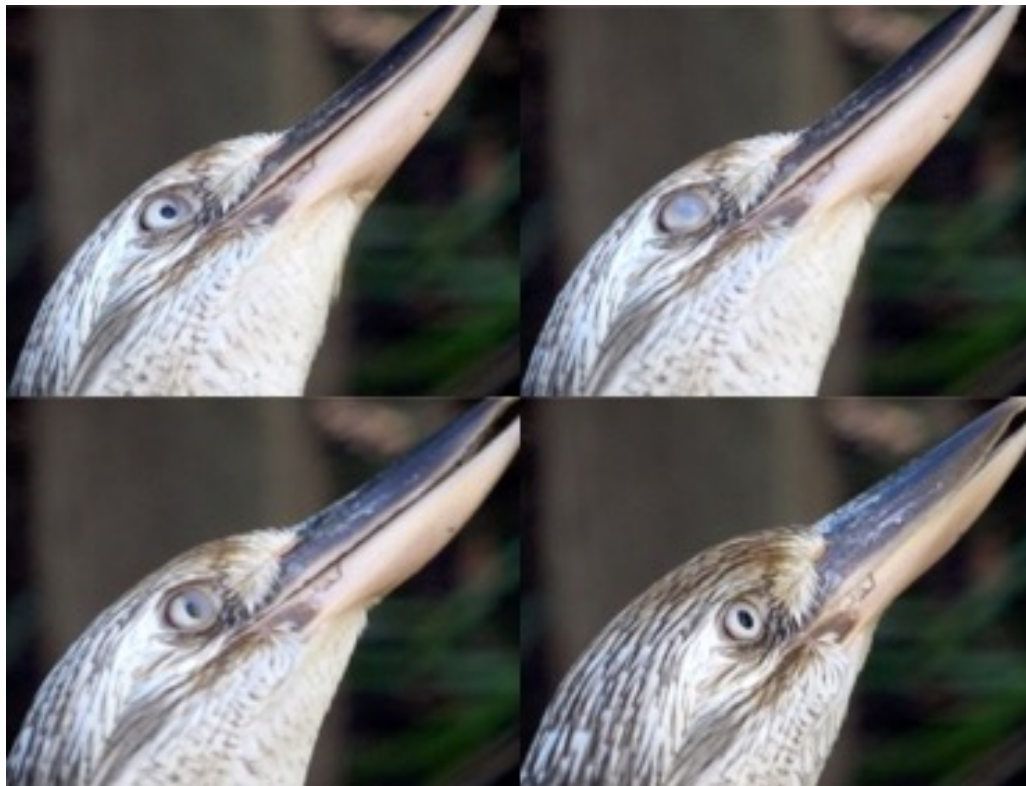


Order Coraciiformes

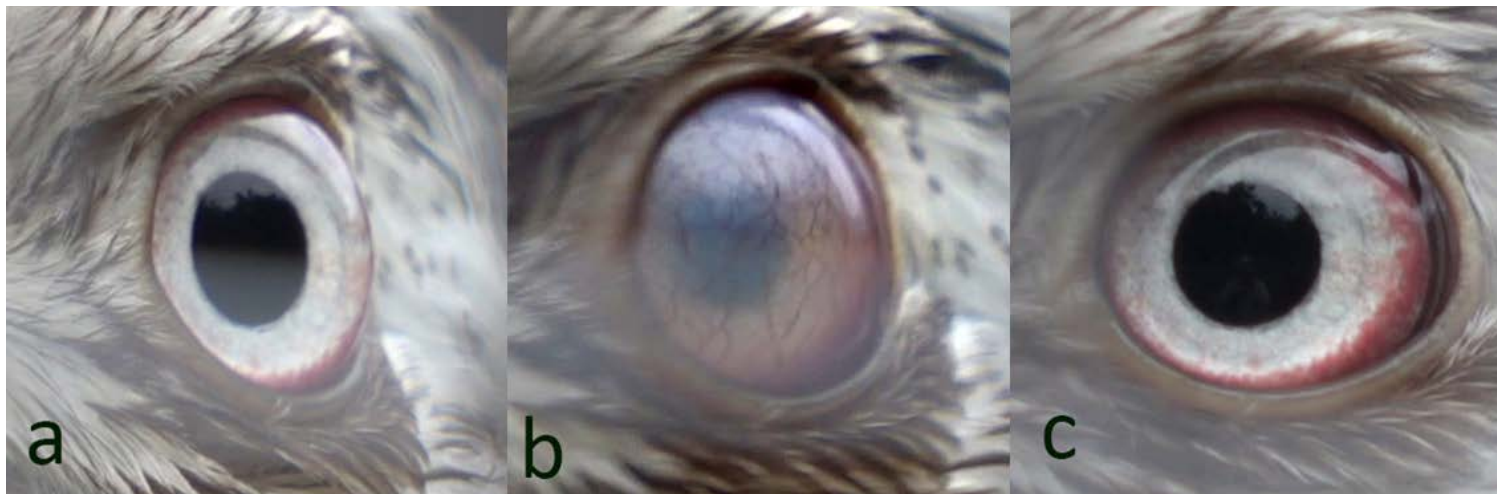
Family Alcedinidae

Blue-winged kookaburra (*Dacelo leachii*)

Nictitating membrane blink on head turn



Nictitating membrane blink on eye movement



a) Pre-blink. b) Semi-transparent nictitating membrane covers the eye. Note blood vessels. c) Post-blink. Note red colouration around periphery of iris.

Nictitating membrane blink on head turn



Nictitating membrane blink on head turn



Nictitating membrane blink



Red rimmed iris



Nictitating membrane blink



Vestibulo-collic reflex



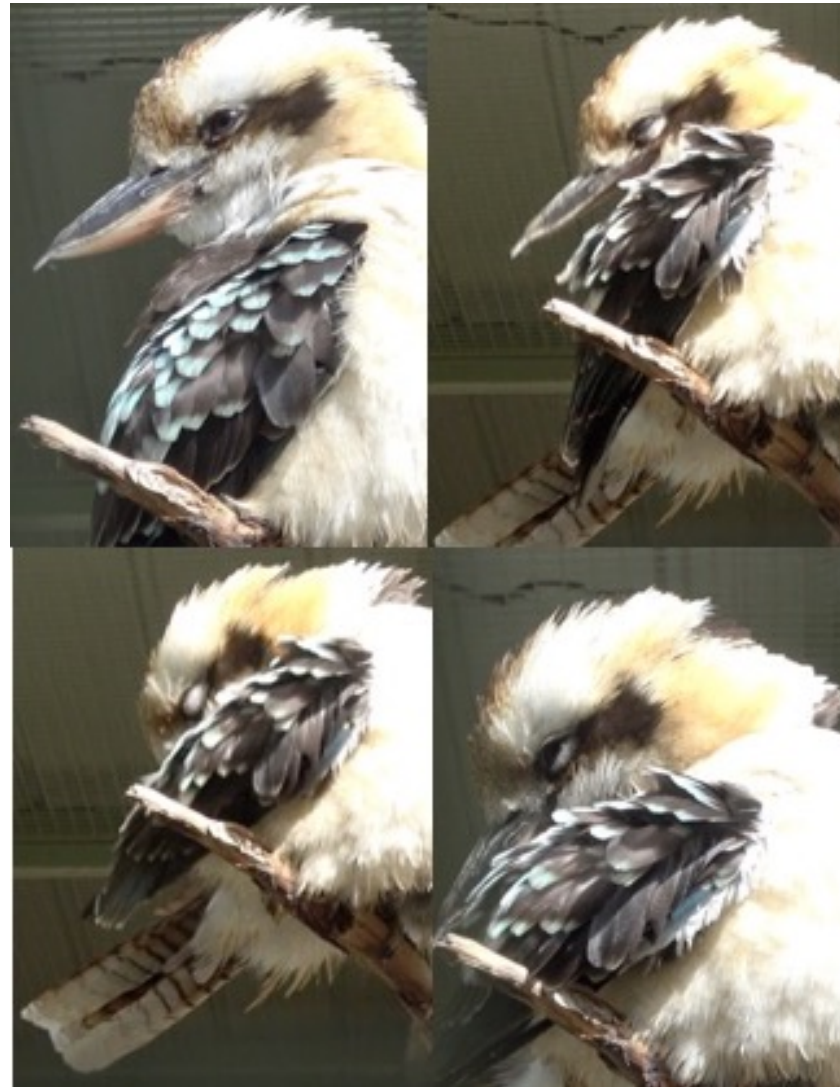
Head remains in the same position as the body is rotated on a tripod.

Laughing kookaburra (*Dacelo novaeguineae*)

Nictitating membrane blink on head turn



Lower lid elevation on preening



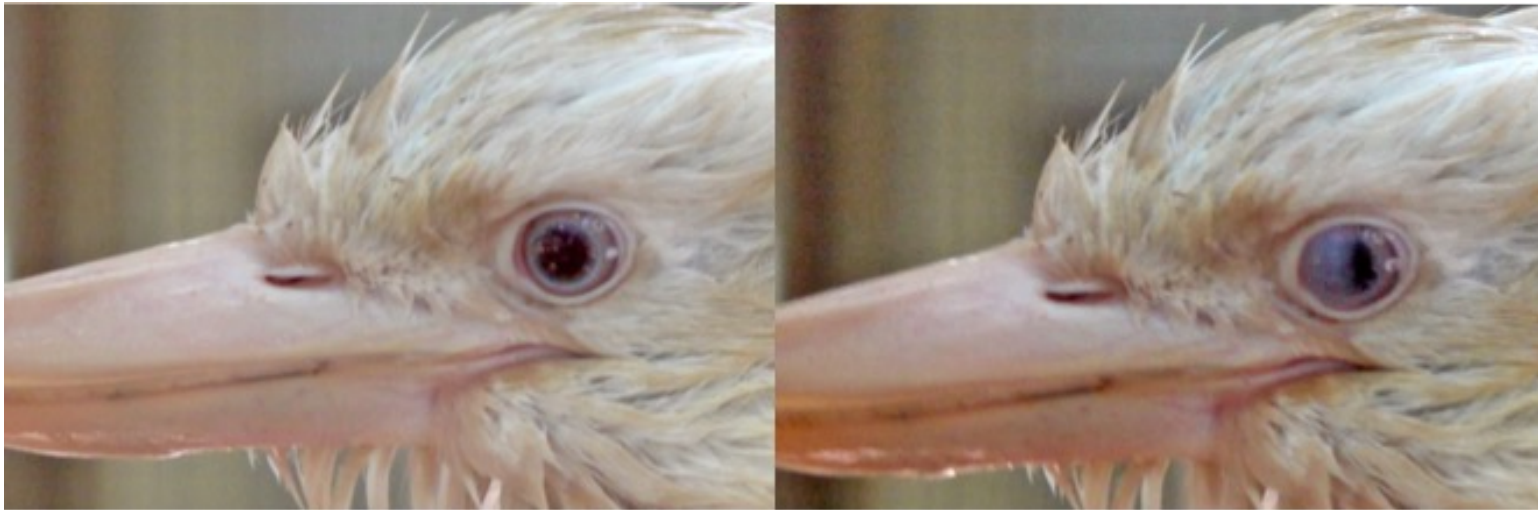
Nictitating membrane blink



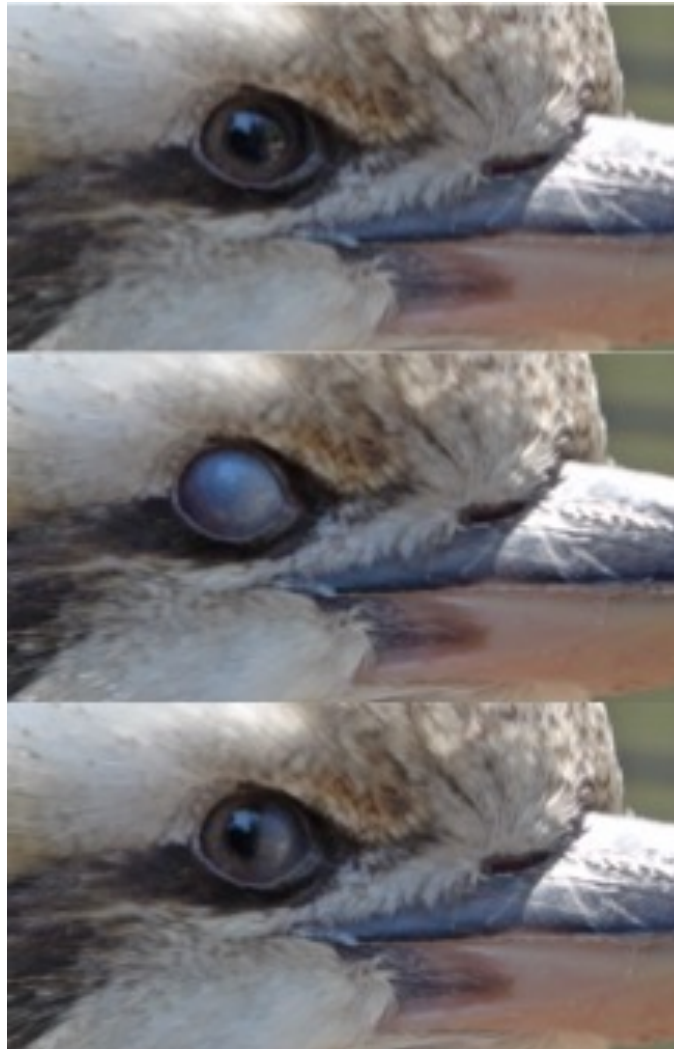
Nictitating membrane blink on head turn



Albino. Nictitating membrane blink on head turn



Nictitating membrane blink on head turn



Ruddy kingfisher (*Halcyon coromanda*)

Nictitating membrane blink on head turn



Nictitating membrane blink on head turn



Collared kingfisher (*Todiramphus chloris*)

Nictitating membrane blink on head turn



Order Cuculiformes

Family Cuculidae

Guira cuckoo (*Guira guira*)

Nictitating membrane blinks on head turn



Nictitating membrane blinks on head turn



Pheasant coucal (*Centropus phasianinus*)

Nictitating membrane blink on head turn



Nictitating membrane blinks on head turn. Red iriss.



Eye movement



Nictitating membrane and lower lid blink



Nictitating membrane and lower lid blink



Pacific koel (*Eudynamys orientalis*)

Nictitating membrane blink



Juvenile begging from red wattlebird



Male and female koels



Male



Female



Channel-billed cuckoo (*Scythrops novaehollandiae*)

Eye movement and nictitating membrane blink



Nictitating membrane blink



Eye movement



Nictitating membrane blink on eye movement



Order Eurypygiformes

Family Eurypygidae

Sunbittern (*Eurypyga helias*)

Nictitating membrane blink on head turn



Rolling head movement makes nictitating membrane blinks hard to see

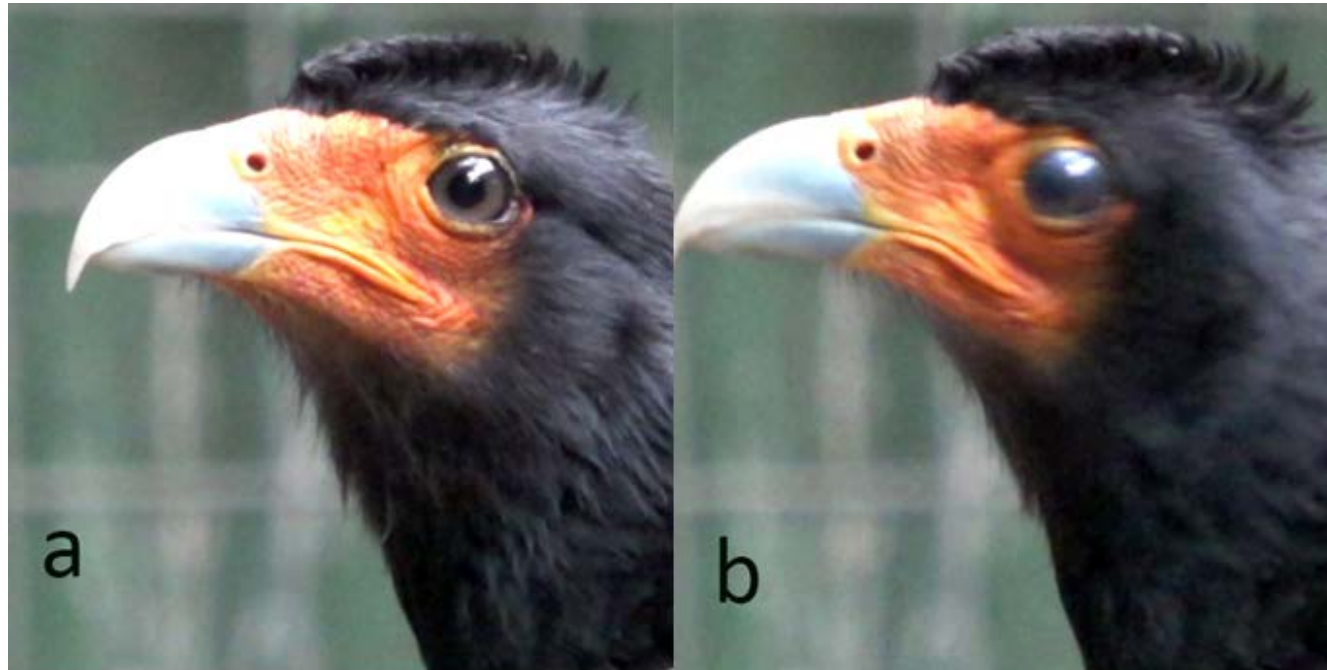


Order Falconiformes

Family Falconidae

Mountain caracara (*Phalcoboenus megalopterus*)

Nictitating membrane blink



a) Pre-blink. Note red bald skin between the eye and the bill. b) Nictitating membrane covers cornea during head movement.

Striated caracara (Phalcoboenus australis)

Nictitating membrane blink on head turn



Nictitating membrane blink on head turn



Crested caracara (*Caracara plancus*)

Nictitating membrane blink on head turn





Rock kestrel (*Falco rupicolus*)

Bobbing of head in a vertical axis – vertical peering?



Nictitating membrane blink on head turn



a) Pre-blink. b) Nictitating membrane covers cornea during head movement. c) Post blink and end of head movement.

Elevation of lower lid during preening



Nankeen kestrel (*Falco cenchroides*)

Nictitating membrane blinks on head turn



Narrowing of palpebral fissure due to elevation of lower lid with drowsiness





Nictitating membrane blink on head turn



Nictitating membrane blink on head turn



No lid blink on feeding



Nictitating membrane blink on head turn



Merlin (*Falco columbarius*)



Eurasian hobby (*Falco subbuteo*)

Nictitating membrane blink with elevation of lower lid



Order Galliformes

Family Cracidae

Helmeted curassow (Pauxi pauxi)

Nictitating membrane blink

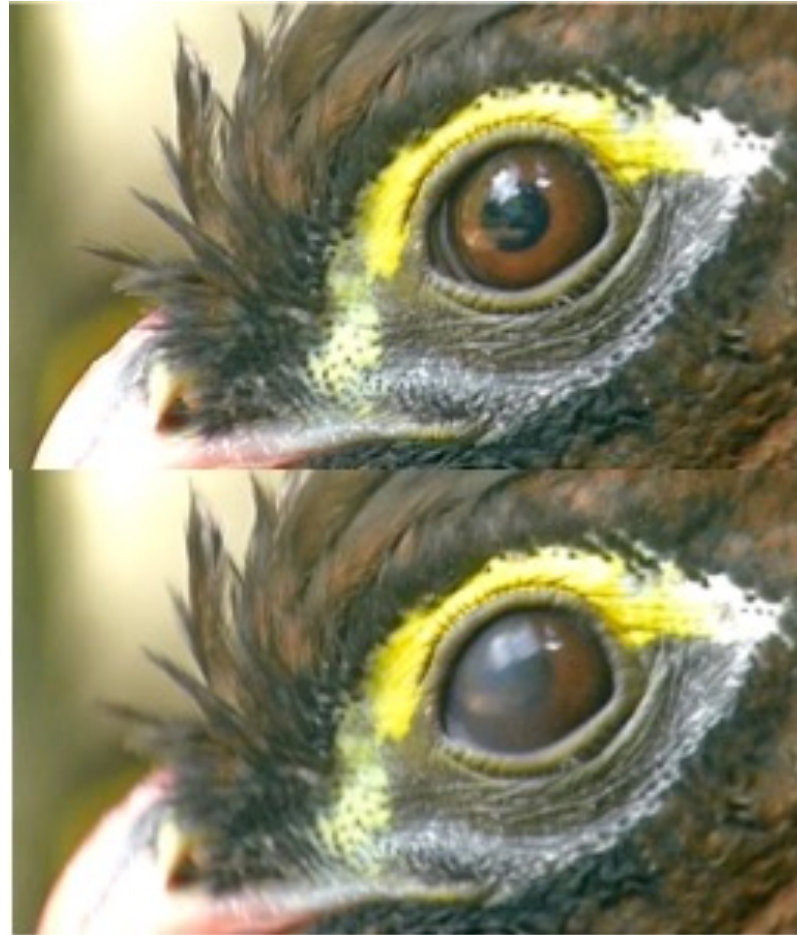


Nictitating membrane blink

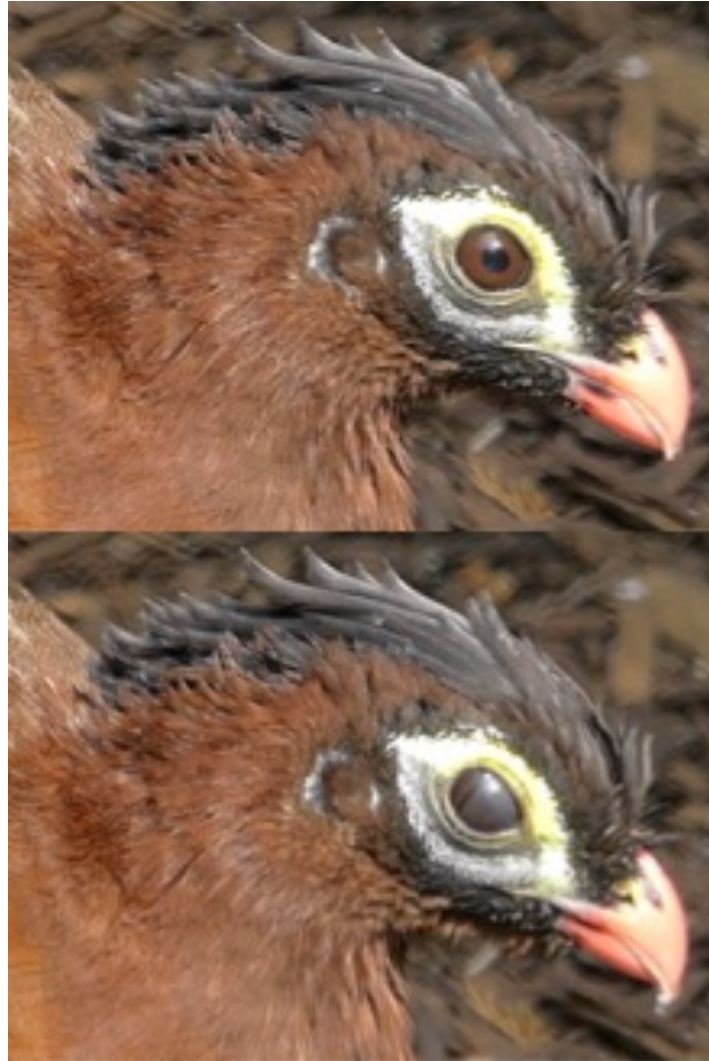


Nocturnal curassow (*Nothocrax urumutum*)

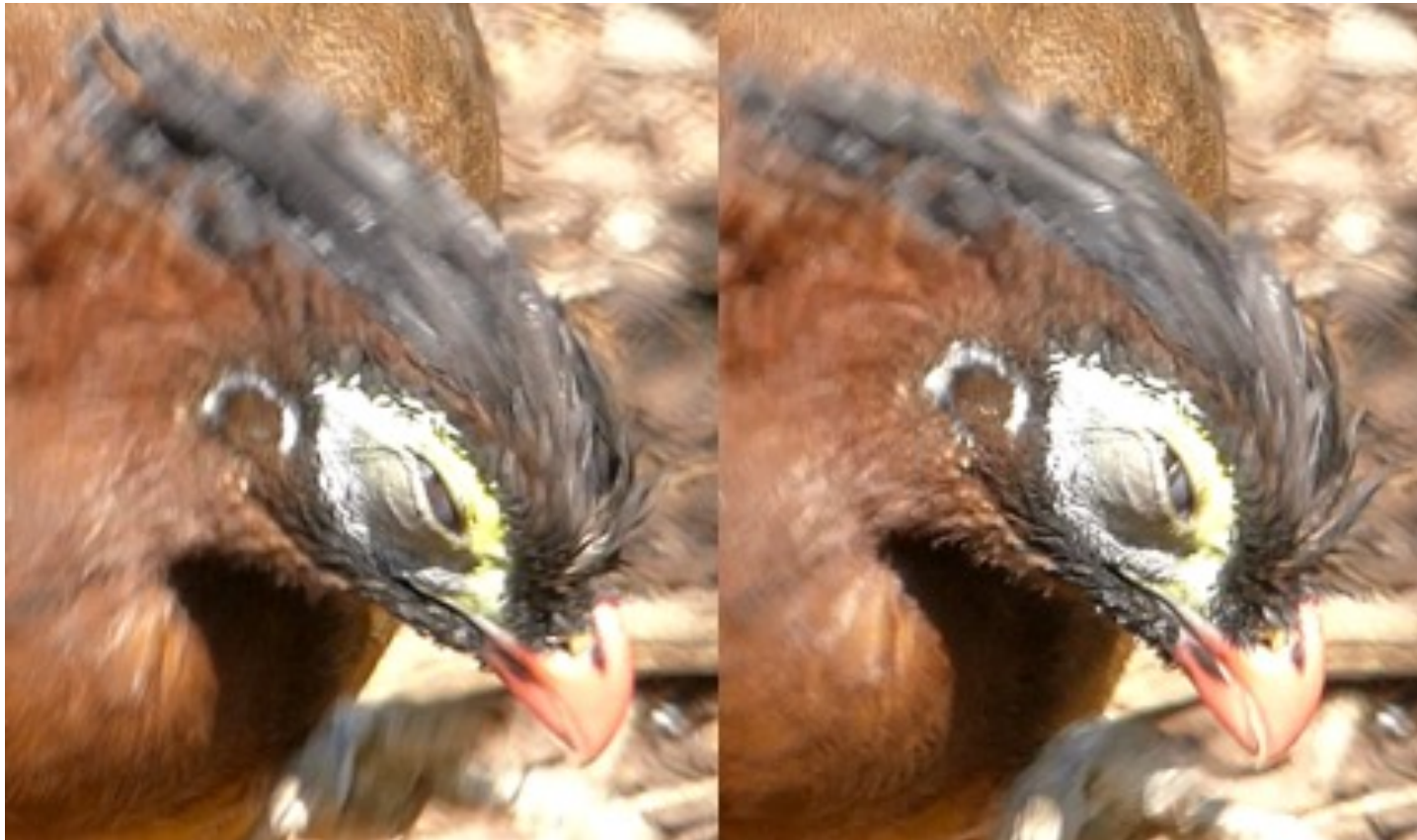
Nictitating membrane blink



Nictitating membrane blink



Nictitating membrane and lower lid blink with drowsiness



Nictitating membrane and lower lid blink with drowsiness



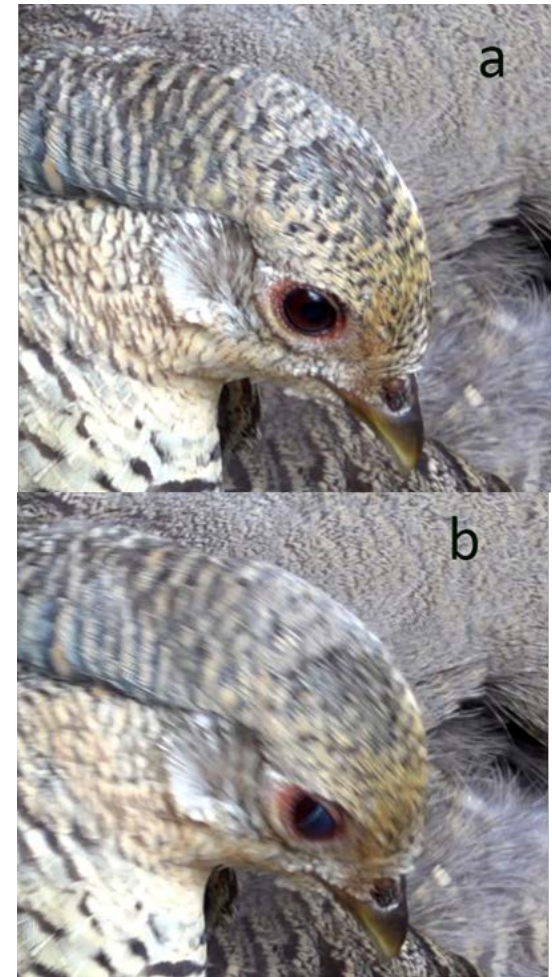
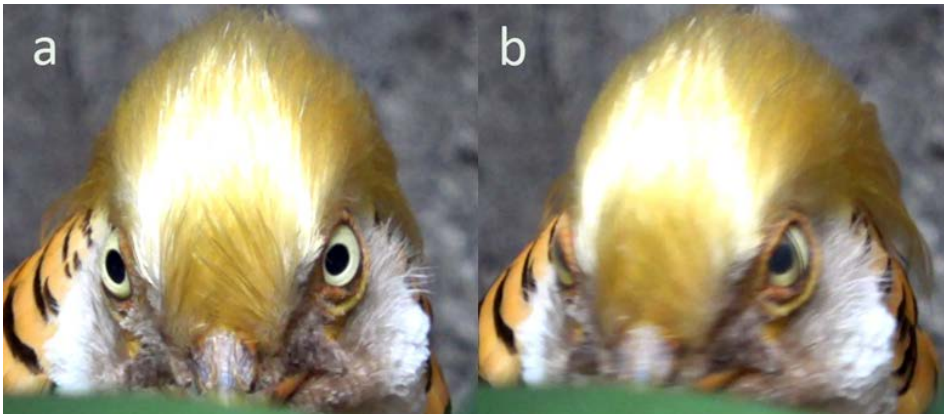
Family Phasianidae

Golden pheasant (*Chrysolophus pictus*)

Nictitating membrane blink



Male. a) Pre-blink. Note eccentric position of pupil. b) Almost translucent nictitating membrane.



Female. a) Pre-blink. b) Nictitating membrane.

Slight lowering of upper lid on nictitating membrane blink



Female. Lower lid elevated with preening



Female. Nictitating membrane blink



Great argus (*Argusianus argus*)

Nictitating membrane blink with slight lowering of inner part of upper lid



Nictitating membrane blink with slight lowering of inner part of upper lid



Lady Amherst's pheasant (*Chrysolophus amherstiae*)

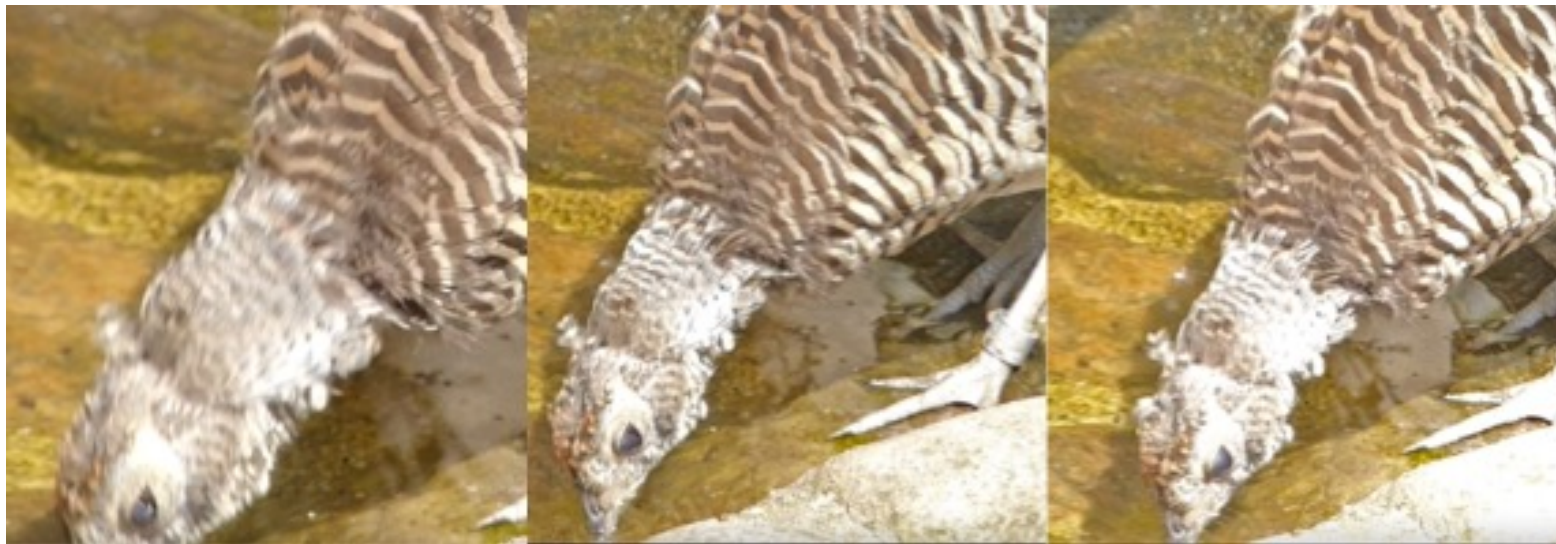
Slight lowering of upper lid on nictitating membrane blink



Female. Lower lid and nictitating membrane blink with preening

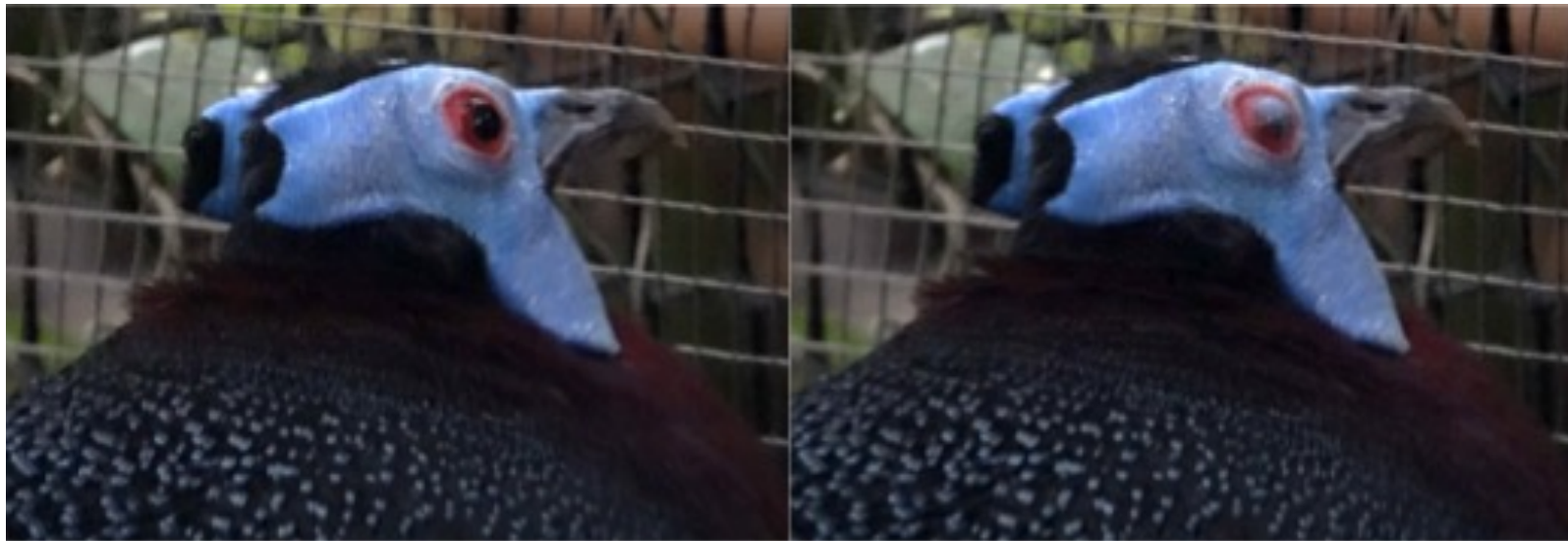


Female. Nictitating membrane blink with each peck of water



Bulwer's pheasant (*Lophura bulweri*)

Nictitating membrane blink



Eye movements



Siamese fireback (*Lophura diardi*)

Nictitating membrane blink with slight lowering of inner part of upper lid



Temminck's tragopan (*Tragopan temminckii*)

Nictitating membrane blink



Nictitating membrane blink with elevation of lower lid



Domestic turkey (*Meleagris gallopavo domesticus*)

Nictitating membrane blink



Nictitating membrane blink



Fledgling. Nictitating membrane blink



Nictitating membrane blink



Crested partridge (*Rollulus rouloul*)

Lower lid blink during preening



Japanese quail (*Coturnix japonica*)

Upper lid blink on head turn



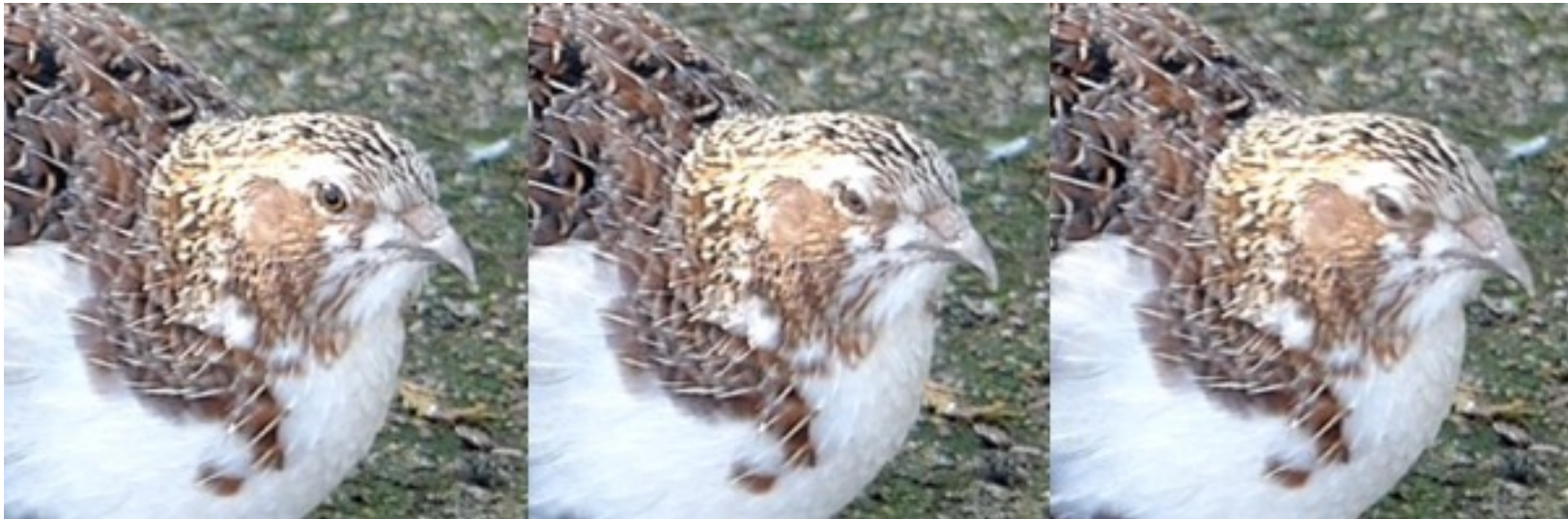
Upper lid blink on head turn



Upper and lower lid blink on pecking



Upper lid blink on head turn



Upper lid blink on head turn



Lower lid elevation with drowsiness



Upper lid and nictitating membrane blink



Upper and lower lid blink

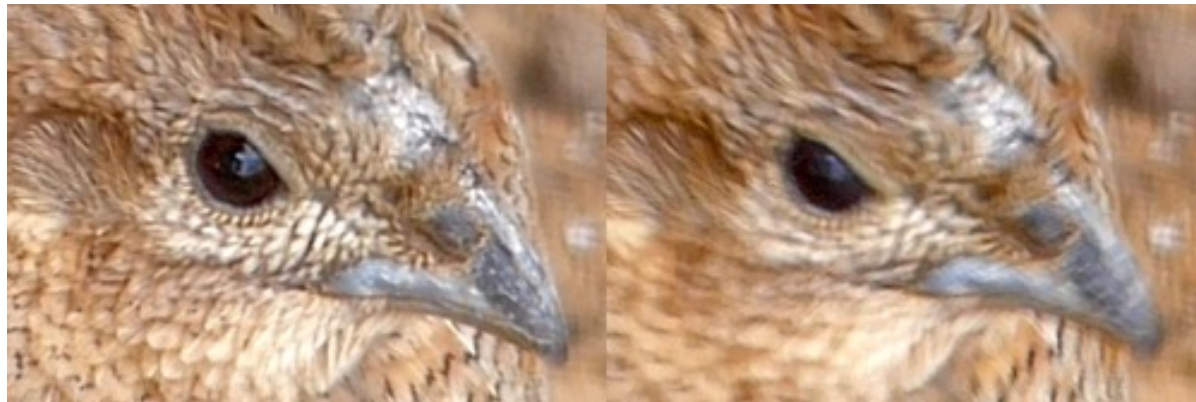


Brown quail (*Synoicus ypsilophorus*)

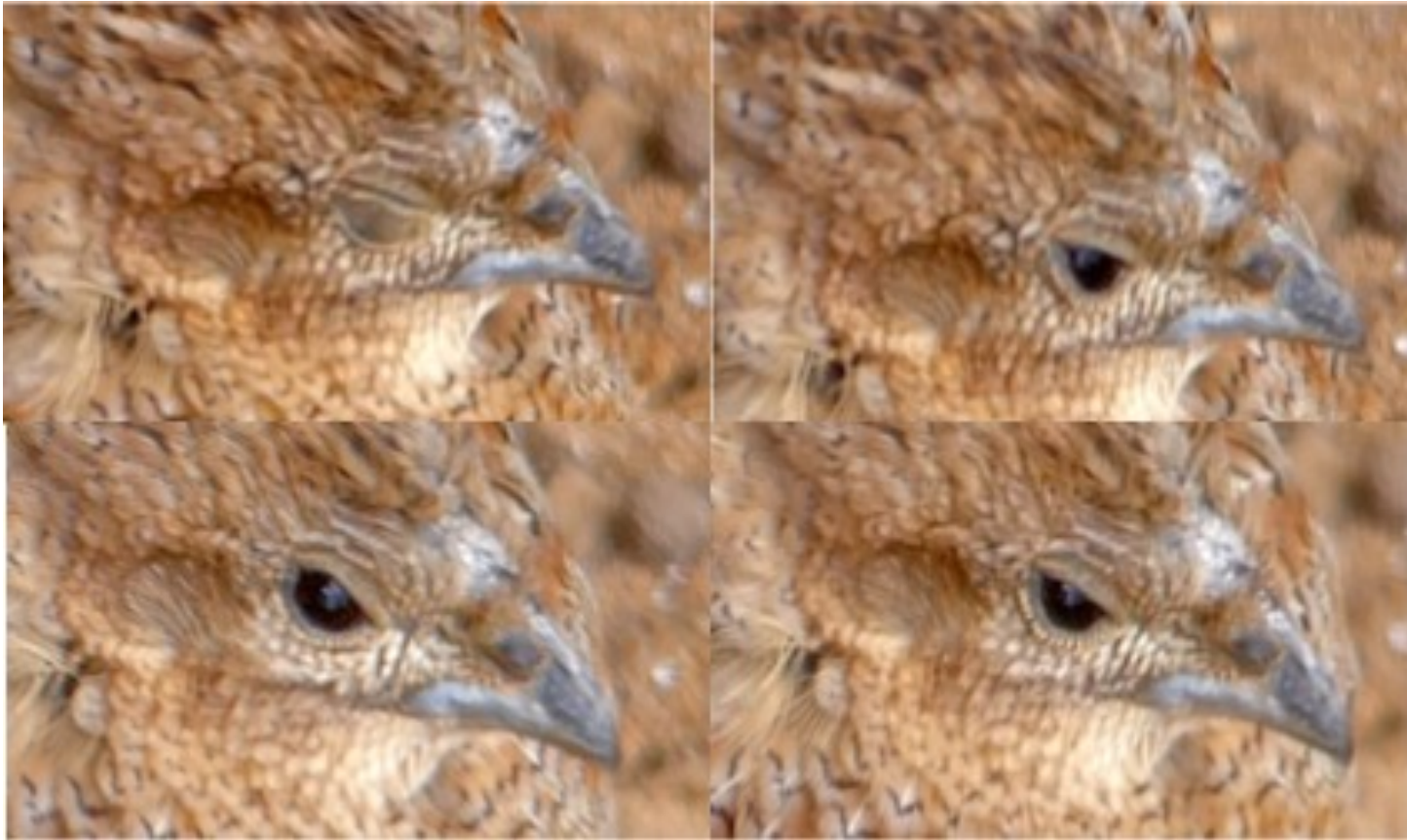
Upper and lower lid blink



Nictitating membrane blink with slight lowering of inner part of upper lid

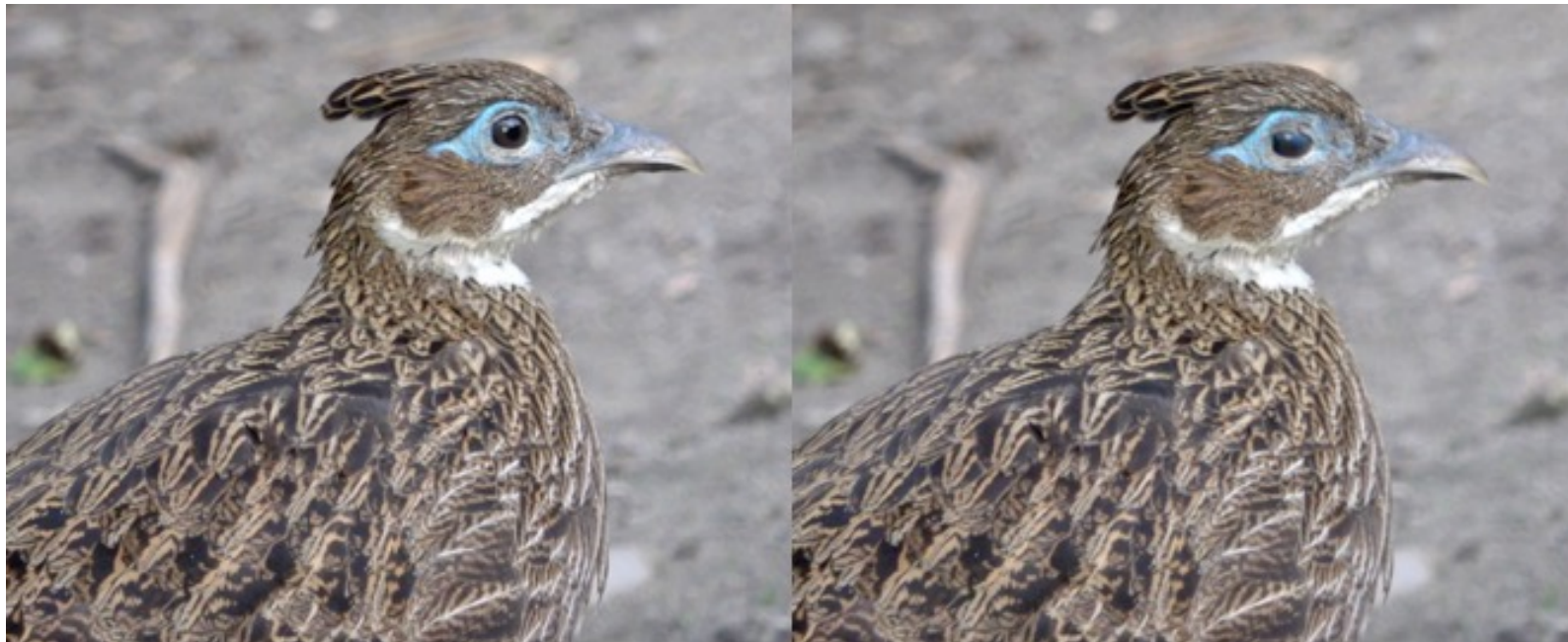


Mainly lower lid blink



Himalayan monal (*Lophophorus impejanus*)

Nictitating membrane blink with slight lowering of the upper lid



Palawan peacock-pheasant (*Polyplectron napoleonis*)

Nictitating membrane blink with slight lowering of inner part of upper l



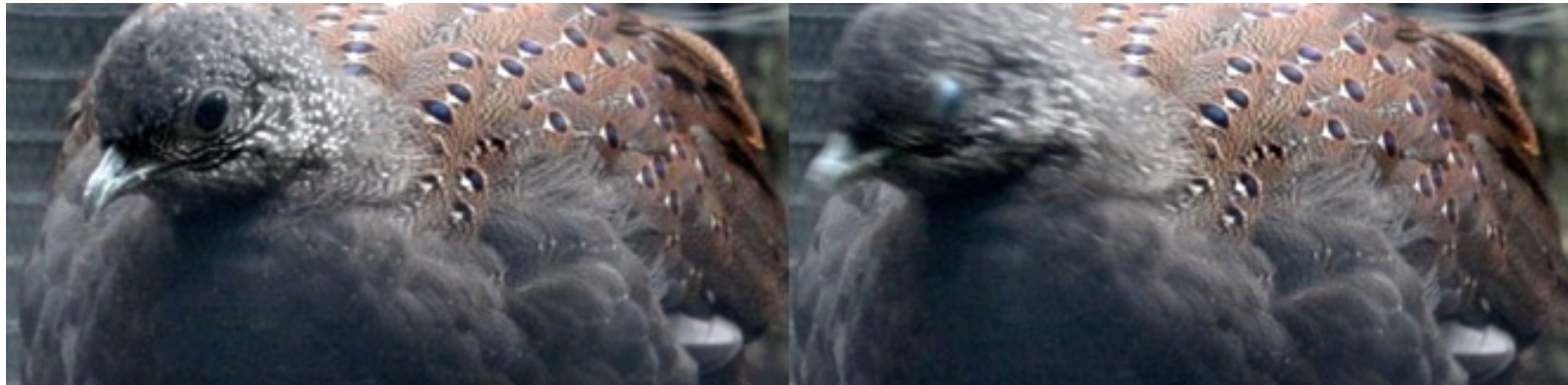
Mountain peacock-pheasant (*Polyplectron inopinatum*)

*Lower lid
preening*



elevated on

Nictitating membrane blink on head movement

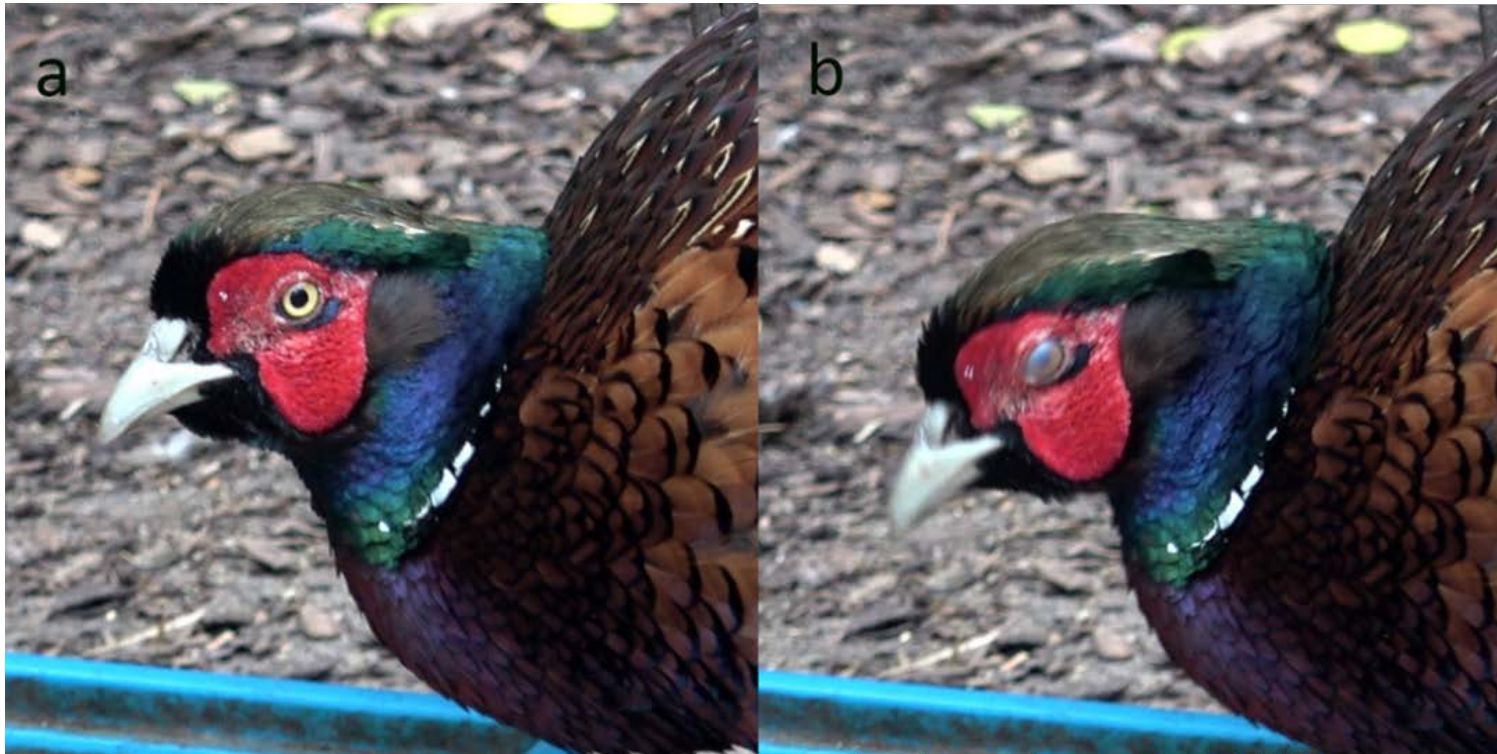


Erckel's spurfowl (*Pternistis erckelii*)



Common pheasant (*Phasianus colchicus*)

Nictitating membrane blink on head movement



Nictitating membrane blink with elevation of lower lid on pecking



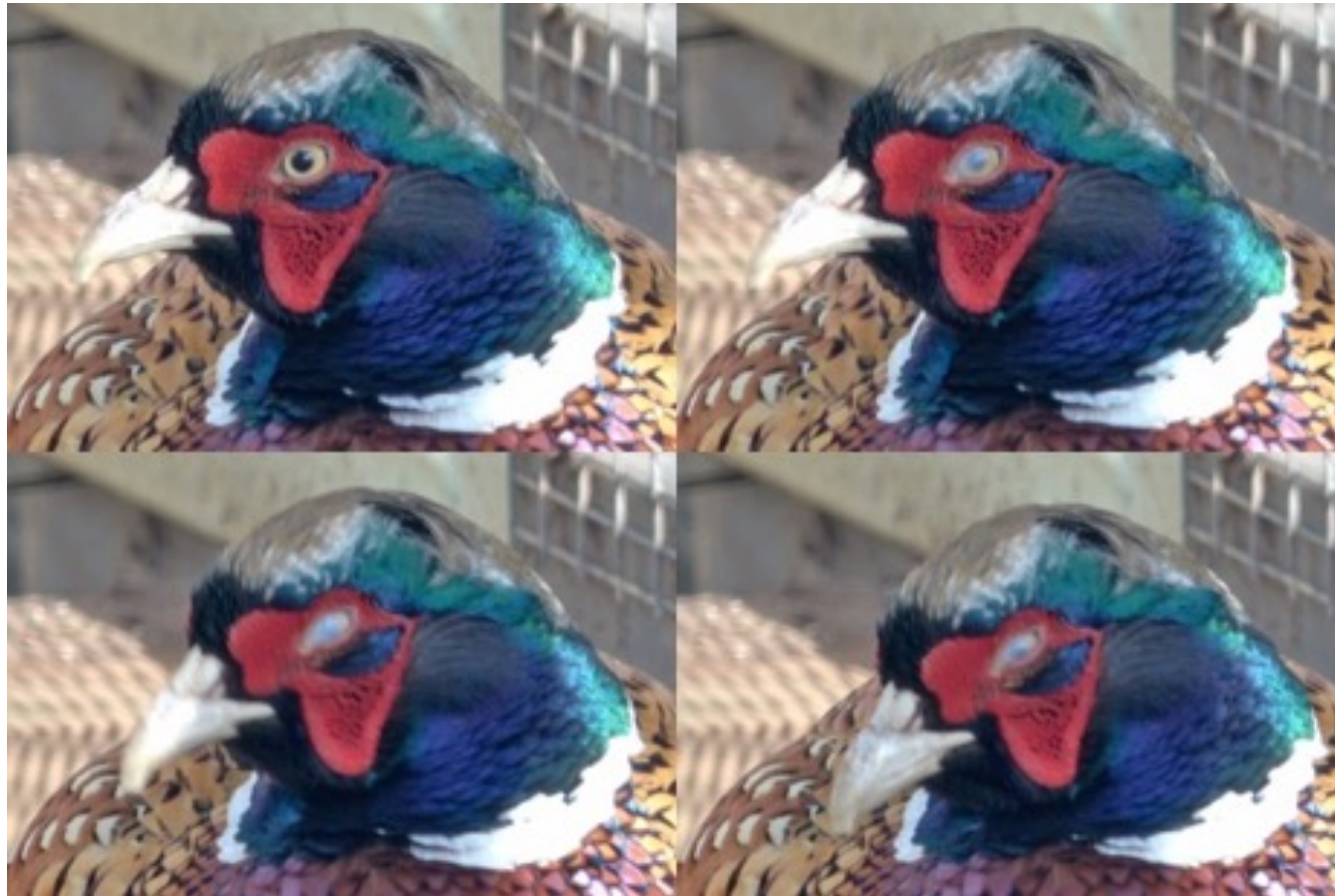
Nictitating membrane blink on head movement



Nictitating membrane blink with lowering of the inner part of the upper lid



Nictitating membrane blink with narrowing of the palpebral fissure



Silver pheasant (*Lophura nycthemera*)

Female. Nictitating membrane blink on head movement



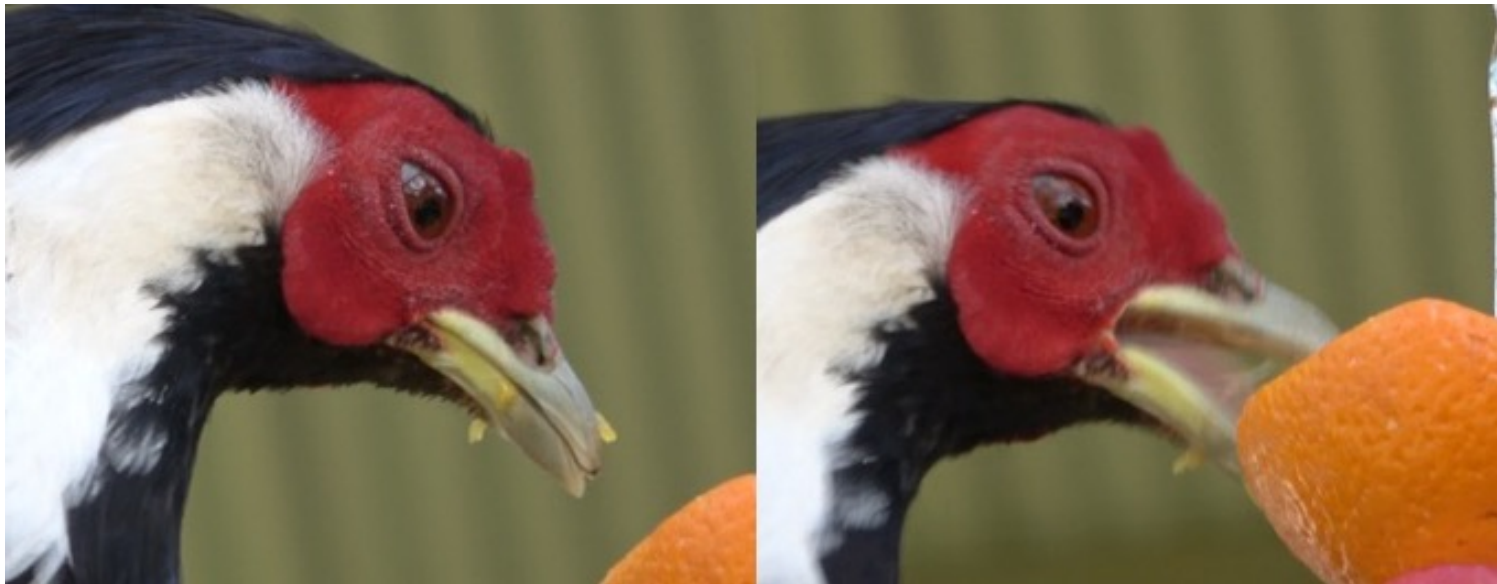
Male. Nictitating membrane blink on head movement



Female. Nictitating membrane blink on head movement



Male. No blink on pecking



Nictitating membrane blink with with slight lowering of inner part of upper lid



Lower lid rises on pecking



Indian peafowl (*Pavo cristatus*)

Male. Nictitating membrane blink on head movement



Male. Nictitating membrane blink on head movement



Leucistic peafowl. Lower lid elevated with drowsiness



Blink involving nictitating membrane, upper and lower lids



Lower lid and nictitating membrane blink with preening



Green peafowl (*Pavo muticus*)

Lower lid and nictitating membrane blink with drowsiness



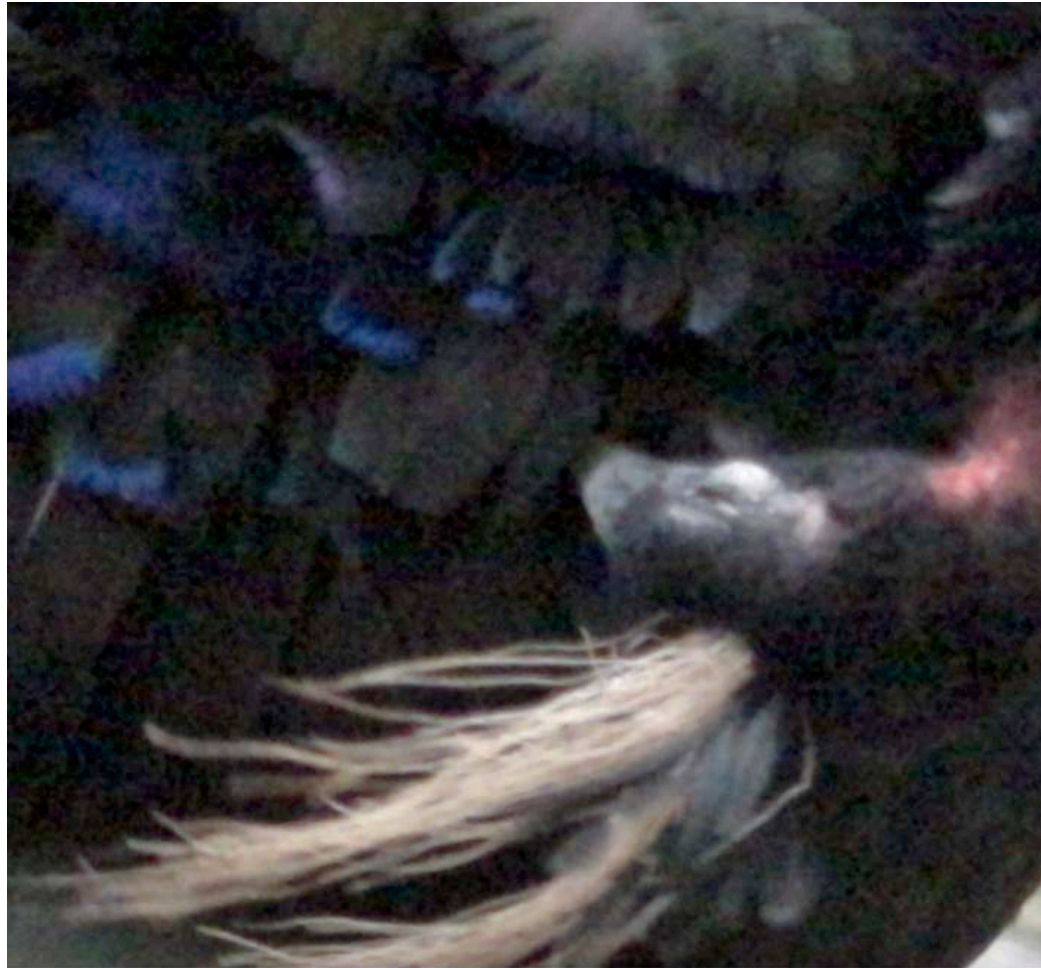


Lower lid blink with drowsiness



Congo peafowl (*Afropavo congensis*)

Lower lid elevates during preening



Nictitating membrane blink with slight lowering of upper lid

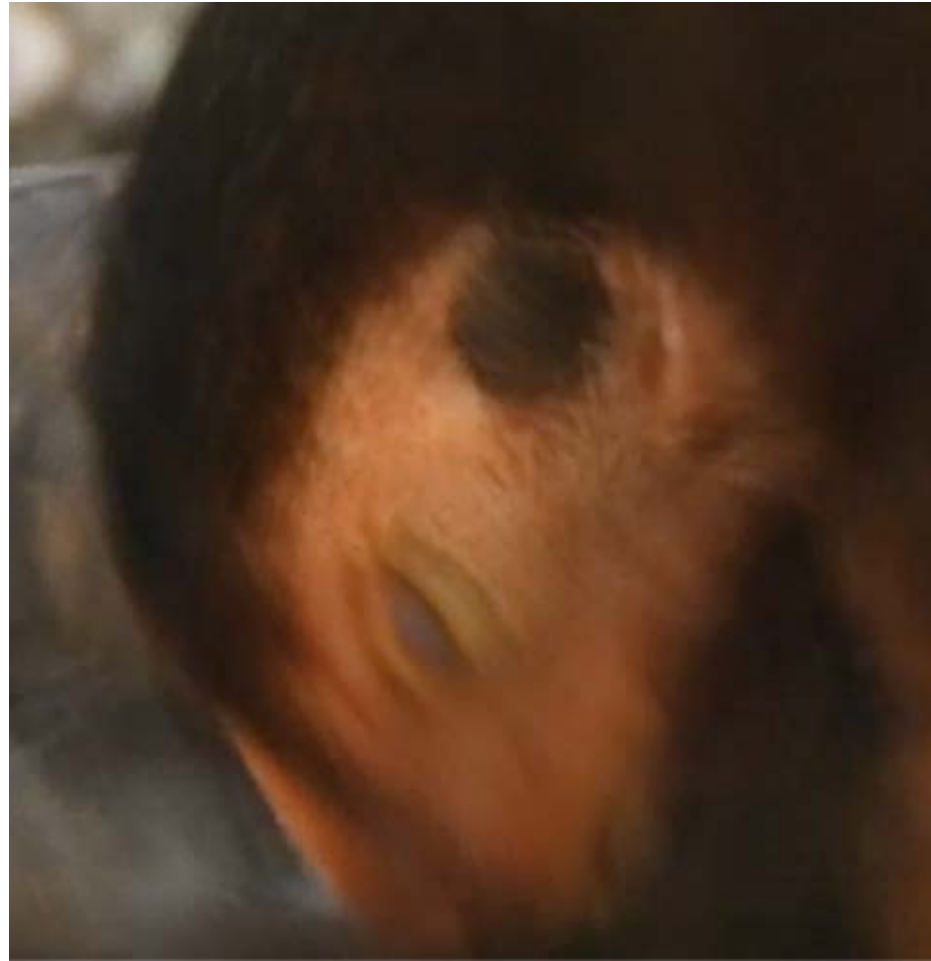


Chicken (*Gallus gallus domesticus*)

Nictitating membrane blink with slight lowering of the inner part of the upper lid, on head turn



Nictitating membrane blink with elevation of lower lid on preening



Male. Nictitating membrane blink with elevation of lower lid with drowsiness



Nictitating membrane blink with slight lowering of the inner part of the upper lid, on head turn



Blinking on pecking



The chickens in this series had taken to pecking lichen off a rusted corrugated iron sheet. They spent much of their time doing this. As a result, they had worn away the tips of their bills. What was noticeable on the video was that with each peck that reached the iron sheet, there was a nictitating membrane blink which started at the beginning of the peck and continued to the end of the peck. 'Feints' of pecking, where no contact was made, were not usually associated with blinks.

Nictitating membrane blink on pecking





Nictitating membrane blink on eye movement



Chukar partridge (*Alectoris chukar*)

Nictitating membrane blink with no change in palpebral fissure



Nictitating membrane blink with no change in palpebral fissure



Pale lower lid rises during pecking



Nictitating membrane blink with narrowing of palpebral fissure while drowsy



Upper and lower lid blink



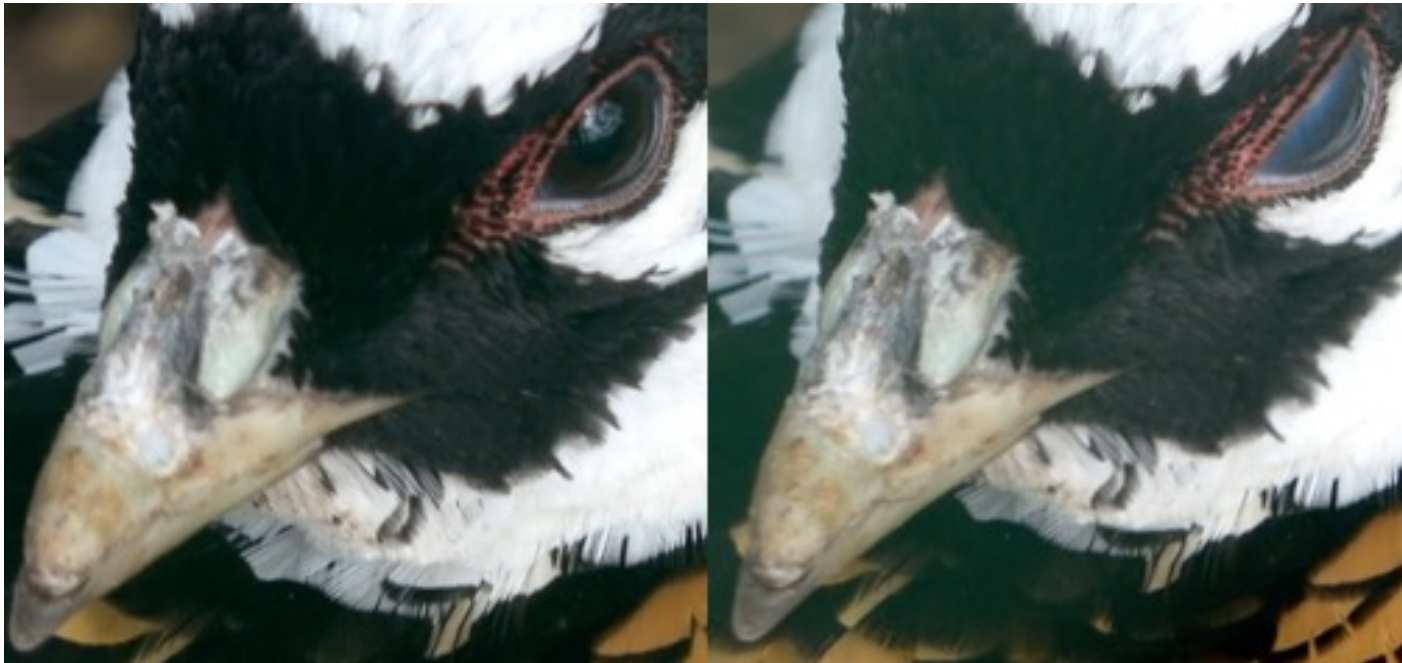
Nictitating membrane blink with narrowing of palpebral fissure due to coming together of both upper and lower eyelids.

Elevation of lower lid with preening



White-cheeked partridge (*Arborophila atrogularis*)

Nictitating membrane blink with slight lowering of upper lid on head turn



King quail (*Synoicus chinensis*)

Upper lid blink on head turn





Nictitating membrane blink with slight lowering of upper lid on head turn

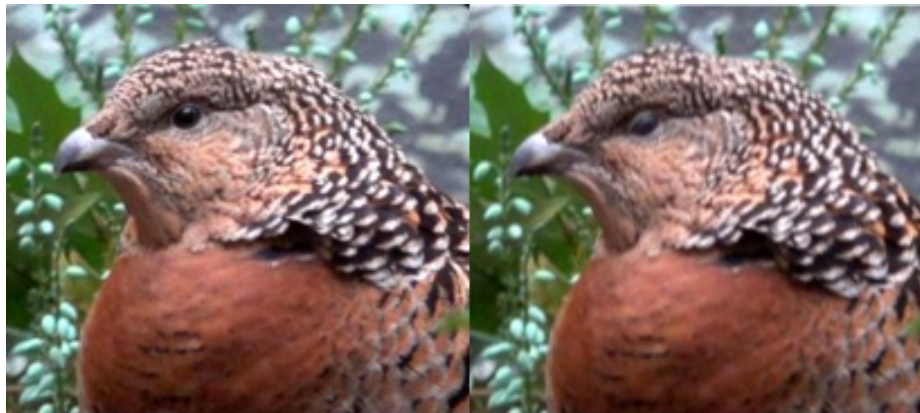


Lower lid elevation with drowsiness

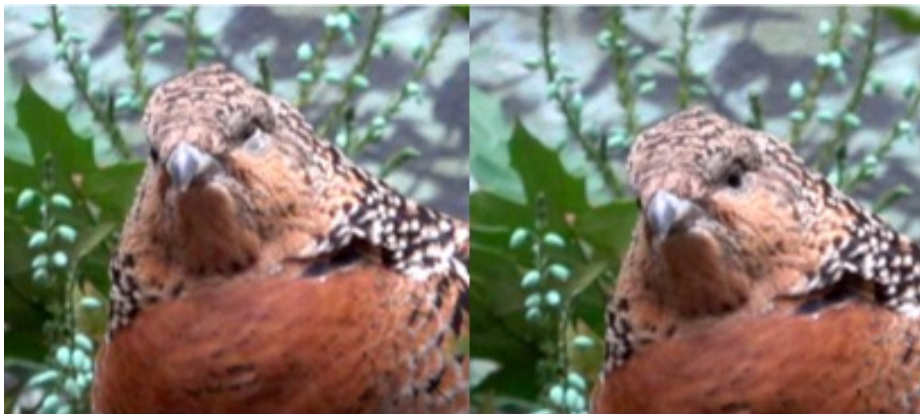


Picture Bird app says it is a Western Capercaillie (*Tetrao urogallus*) but its neck is too short

Nictitating membrane and slight upper lid blink



*Lower lid
blink with
drowsiness.*



Family Odontophoridae

Stone partridge (*Ptilopachus petrosus*)

Rapid head movement makes it hard to see blink on pecking



Lower lid elevation on preening



Northern bobwhite (*Colinus virginianus*)

Nictitating

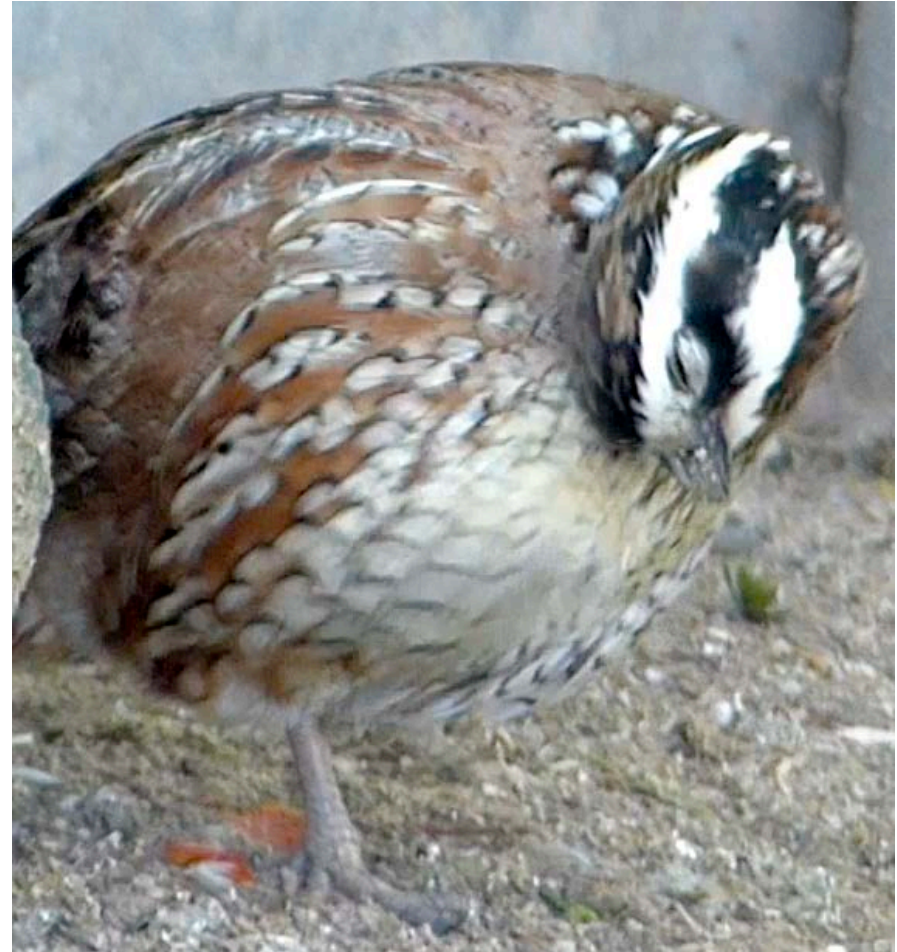
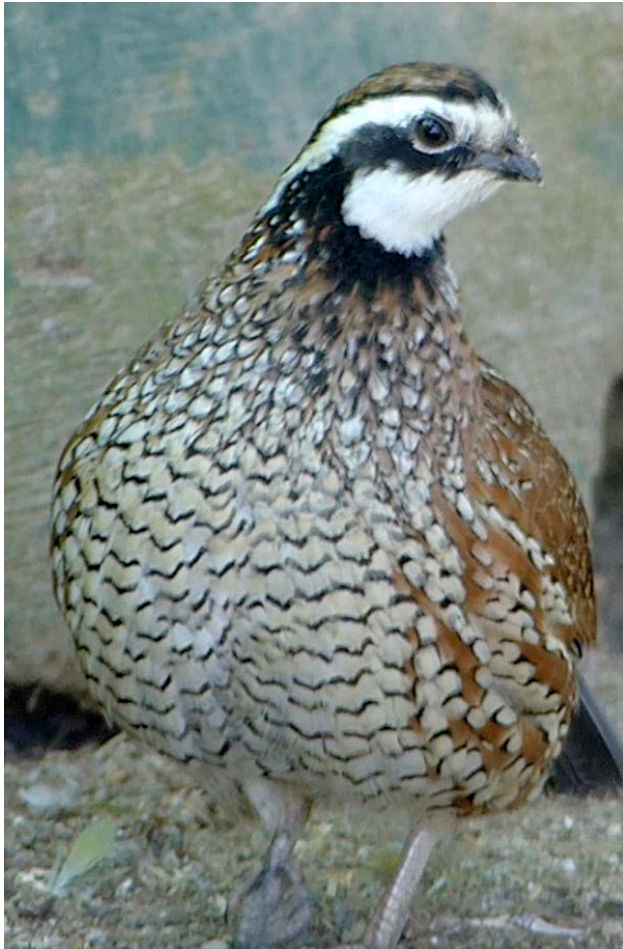


membrane blink on head turn

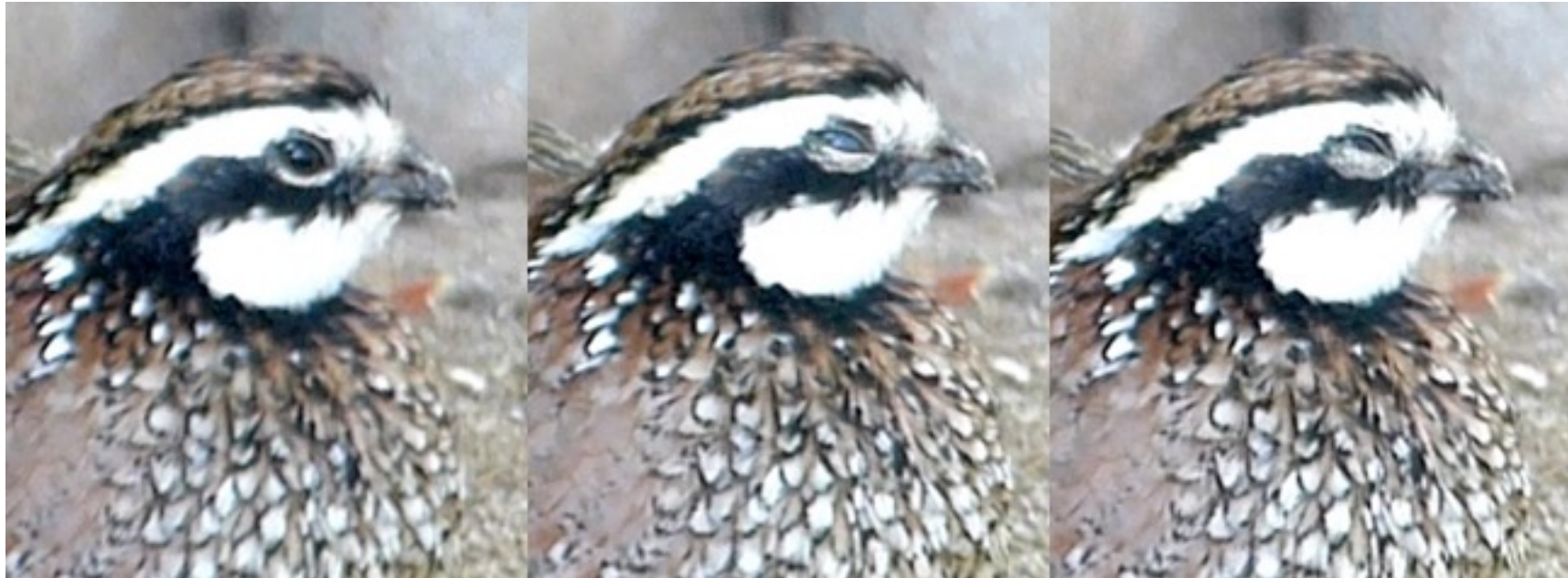
Lower lid elevated on pecking



Lower lid elevated on preening



Nictitating membrane blink with elevation of lower lid with drowsiness



Family Megapodiidae

Malleefowl (*Leipoa ocellata*)

Nictitating membrane blink on head turn



No elevation of lower lid on pecking





Australian brushturkey (*Alectura lathamii*)

Nictitating membrane blink on head turn



Elevation of lower lid on preening





Nictitating membrane blink on head turn



Anting



Anting. Lower lid elevated



Orange-footed scrubfowl (*Megapodius reinwardt*)

Nictitating membrane blink with (?) slight lowering of inner part of upper lid



Family Numididae

Helmeted guineafowl (*Numida meleagris*)

Nictitating membrane blink on head turn

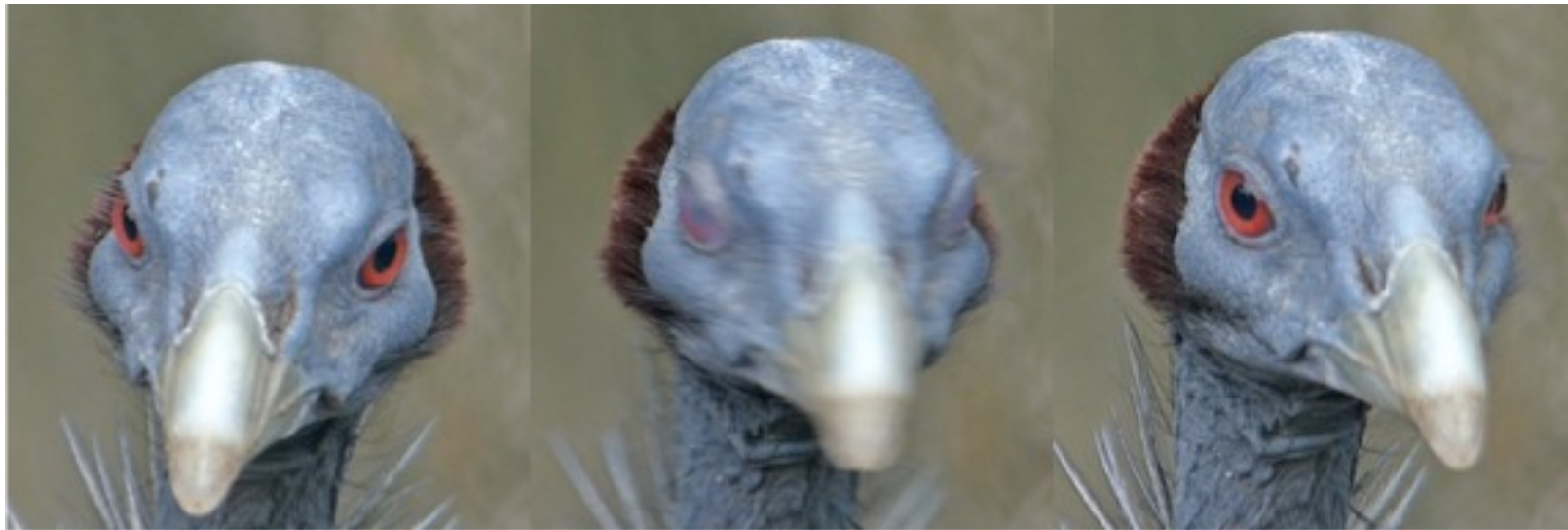


Lower lid elevation with drowsiness



Vulturine guineafowl (*Acryllium vulturinum*)

Nictitating membrane blink on head turn



No nictitating membrane blink on head turn



Nictitating membrane blink on head turn



Abdim's stork (*Ciconia abdimii*), 145
 African mourning dove (*Streptopelia decipiens*), 170
 African olive pigeon (*Columba arquatrix*), 187
 Australian brushturkey (*Alectura lathamii*), 414
 Banded lapwing (*Vanellus tricolor*), 101
 Barbary dove (*Streptopelia risoria*), 171
 Bar-shouldered dove (*Geopelia humeralis*), 201
 Black stork (*Ciconia nigra*), 137
 Black-fronted dotterel (*Elseyaornis melanops*), 105
 Black-headed gull (*Chroicocephalus ridibundus*), 49
 Black-legged kittiwake (*Rissa tridactyla*), 58
 Black-necked stork (*Ephippiorhynchus asiaticus*), 123
 Black-winged stilt (*Himantopus himantopus*), 85
 Blue-bellied roller (*Coracias cyanogaster*), 43
 Blue-winged kookaburra (*Dacelo leachii*), 22, 277
 Brown cuckoo-dove (*Macropygia phasianella*), 158
 Brush bronzewing (*Phaps elegans*), 229
 Bulwer's pheasant (*Lophura bulweri*), 343
 Caspian tern (*Hydroprogne caspia*), 62
 Channel-billed cuckoo (*Scythrops novaehollandiae*), 306
 Chicken (*Gallus gallus domesticus*), 387
 Chukar partridge (*Alectoris chukar*), 395
 Collared kingfisher (*Todiramphus chloris*), 38, 293
 Comb-crested jacana (*Irediparra gallinacea*), 109
 Common emerald dove (*Chalcophaps indica*), 189
 Common murre or common guillemot (*Uria aalge*), 88
 Common pheasant (*Phasianus colchicus*), 368
 Common redshank (*Tringa totanus*), 78
 Common wood pigeon (*Columba palumbus*), 274

Congo peafowl (*Afropavo congensis*), 385
 Crested caracara (*Caracara plancus*), 314
 Crested fireback (*Lophura ignita*), 345
 Crested pigeon (*Ocyphaps lophotes*), 212
 Cuckoo dove (Genus *macropygia*), 192
 Diamond dove (*Geopelia cuneata*), 174
 Domestic pigeon (*Columba livia domestica*), 162
 Eurasian hobby (*Falco subbuteo*), 327
 European herring gull (*Larus argentatus*), 44
 Far Eastern curlew (*Numenius madagascariensis*), 80
 Flock bronzewing (*Phaps histrionica*), 234
 Forest kingfisher (*Todiramphus macleayii*), 19
 Golden pheasant (*Chrysolophus pictus*), 334
 Great argus (*Argusianus argus*), 338
 Great black-backed gull (*Larus marinus*), 47
 Green imperial pigeon (*Ducula aenea*), 156
 Green peafowl (*Pavo muticus*), 382
 Guam kingfisher (*Todiramphus cinnamominus*), 18
 Guira cuckoo (*Guira guira*), 294
 Hartlaub's gull (*Chroicocephalus hartlaubii*), 57
 Helmeted curassow (*Pauxi pauxi*), 328
 Helmeted guineafowl (*Numida meleagris*), 421
 Himalayan monal (*Lophophorus impejanus*), 362
 Hooded plover (*Thinornis cucullatus*), 108
 Inca tern (*Larosterna inca*), 59
 Indian peafowl (*Pavo cristatus*), 379
 Japanese quail (*Coturnix japonica*), 353
 Kelp gull (*Larus dominicanus*), 70
 Kererū (*Hemiphaga novaeseelandiae*), 220

King quail (*Synoicus chinensis*), 402
 Lady Amherst's pheasant (*Chrysolophus amherstiae*), 340
 Laughing dove (*Spilopelia senegalensis*), 181
 Laughing kookaburra (*Dacelo novaeguineae*), 30, 285
 Lesser sand plover (*Charadrius mongolus*), 107
 Malleefowl (*Leipoa ocellata*), 412
 Marabou stork (*Leptoptilos crumenifer*), 110
 Masked lapwing (*Vanellus miles*), 95
 Merlin (*Falco columbarius*), 326
 Milky stork (*Mycteria cinerea*), 139
 Mindanao bleeding-heart (*Gallicolumba crinigera*), 153
 Mountain caracara (*Phalcoboenus megalopterus*), 311, 328
 Mountain peacock-pheasant (*Polyplectron inopinatum*), 365
 Mourning dove (*Zenaida macroura*), 180
 Nankeen kestrel (*Falco cenchroides*), 319
 Nicobar pigeon (*Caloenas nicobarica*), 257
 Nocturnal curassow (*Nothocrax urumutum*), 330
 Northern bobwhite (*Colinus virginianus*), 408
 Northern carmine bee-eater (*Merops nubicus*), 15
 Orange-footed scrubfowl (*Megapodius reinwardt*), 420
 Oriental dollarbird (*Eurystomus orientalis*), 39
 Pacific golden plover (*Pluvialis fulva*), 106
 Pacific gull (*Larus pacificus*), 65
 Painted stork (*Mycteria leucocephala*), 140
 Palawan peacock-pheasant (*Polyplectron napoleonis*), 363
 Pheasant coucal (*Centropus phasianinus*), 296
 Pheasant pigeon (*Otidiphaps nobilis*), 188
 Pied avocet (*Recurvirostra avosetta*), 81
 Pied imperial pigeon (*Ducula bicolor*), 193
 Rainbow bee-eater (*Merops ornatus*), 14

Red knot (*Calidris canutus*), 79
 Red-legged seriema (*Cariama cristata*), 5
 Red-necked avocet (*Recurvirostra novaehollandiae*), 83
 Rock kestrel (*Falco rupicolus*), 316
 Rollulus rouloul, 352
 Rose-crowned fruit dove (*Ptilinopus regina*), 243
 Ruddy kingfisher (*Halcyon coromanda*), 36, 291
 Sacred kingfisher (*Todiramphus sanctus*), 21
 Saddle-billed stork (*Ephippiorhynchus senegalensis*), 119
 Siamese fireback (*Lophura diardi*), 345
 Silver gull (*Chroicocephalus novaehollandiae*), 73
 Silver pheasant (*Lophura nycthemera*), 373
 Speckled pigeon (*Columba guinea*), 183
 Spinifex pigeon (*Geophaps plumifera*), 271
 Spotted dove (*Spilopelia chinensis*), 197
 Spur-winged lapwing (*Vanellus spinosus*), 94
 Squatter pigeon (*Geophaps scripta*), 270
 Stone partridge (*Ptilopachus petrosus*), 407
 Storm's stork (*Ciconia stormi*), 122
 Striated caracara (*Phalcoboenus australis*), 312
 Sulawesi ground dove (*Gallicolumba tristigmata bimaculata*),
 186
 Sunbittern (*Eurypyga helias*), 309
 Superb fruit dove (*Ptilinopus superbus*), 238
 Synoicus ypsilophorus, 360
 Temminck's tragopan (*Tragopan temminckii*), 346
 Thalasseus bergii, 50
 Topknot pigeon (*Lopholaimus antarcticus*), 154
 Torresian imperial pigeon (*Ducula spilorrhoa*), 196
 Tufted puffin (*Fratercula cirrhata*), 92

Victoria crowned pigeon (*Goura victoria*), 254
Vulturine guineafowl (*Acryllium vulturinum*), 4, 423
White stork (*Ciconia ciconia*), 148
White tern (*Gygis alba*), 63
White-bibbed ground dove (*Pampusana jobiensis*), 266
White-cheeked partridge (*Arborophila atrogularis*), 401
White-fronted bee-eater (*Merops bullockoides*), 18
White-fronted tern (*Sterna striata*), 64

White-headed pigeon (*Columba leucomela*), 202
White-throated bee-eater (*Merops albicollis*), 11
Wompoo fruit dove (*Ptilinopus magnificus*), 247
Wonga pigeon (*Leucosarcia melanoleuca*), 248
Woolly-necked stork (*Ciconia episcopus*), 142
Yellow-billed stork (*Mycteria ibis*), 117
Zebra dove (*Geopelia striata*), 222