so long, farewell, goodbye

Froona, Warrun and Barega fly the coop

alcoa anglesea

2009

environment report

november

ALCOA

australia's aluminium

air

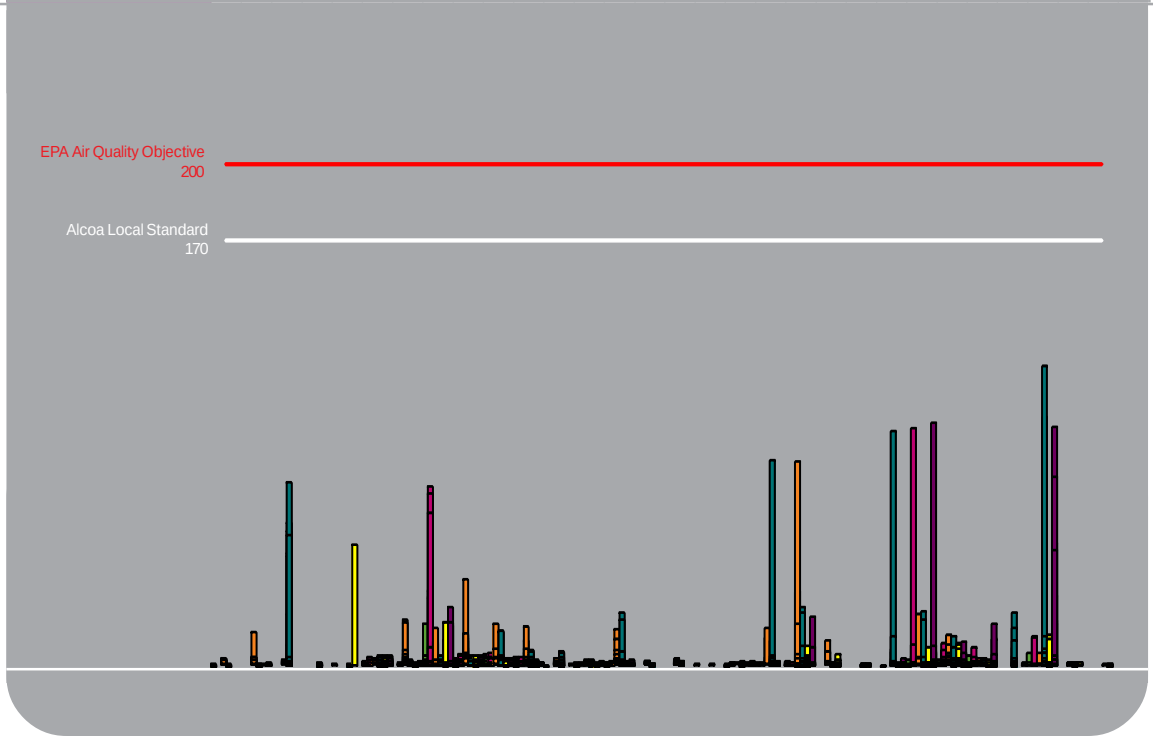
Air Monitoring Stack Monitors	Average	Maximum
Opacity g/m^3 10-minute average	0.044	0.120
Stack SO_2 kg/min 1-hour average **Licence limit** 100kg/min	69.89	80.61

Ambient Monitors SO_2 1 hour ppb	Average	Maximum
Community Centre	1	17
Primary School	1	94
Mt Ingoldsby	1	81
Scout Camp	3	119
Camp Wilkin	1	48
Camp Road	1	97

Ambient Monitors

SO_2 Maximum 1 hour averages (ppb)

Date	1	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
Community Centre	0	0	0	0	1	2	0	17	3	5	3	0	1	1	0	0	1	1	1	2	0	0	0	2	2	4	0	5	0	0
Primary School	0	0	0	0	0	3	1	72	5	5	3	0	1	1	0	0	0	1	1	1	0	0	0	94	9	7	0	12	0	0
Mt Ingoldsby	2	13	2	0	0	2	18	15	34	16	15	2	2	14	1	2	0	1	14	81	9	0	0	20	12	3	0	4	1	0
Scout Camp	0	1	73	1	0	4	2	4	4	14	6	6	2	21	0	2	0	2	82	23	1	0	94	21	12	3	21	119	1	1
Camp Wilkin	0	1	0	0	48	4	1	17	4	3	2	0	1	2	0	0	0	1	1	8	4	1	1	7	9	2	0	12	1	1
Camp Road	0	1	0	0	0	4	2	23	4	3	1	1	2	2	0	0	0	2	0	19	0	0	3	97	10	17	1	95	0	0



water

Water Storage

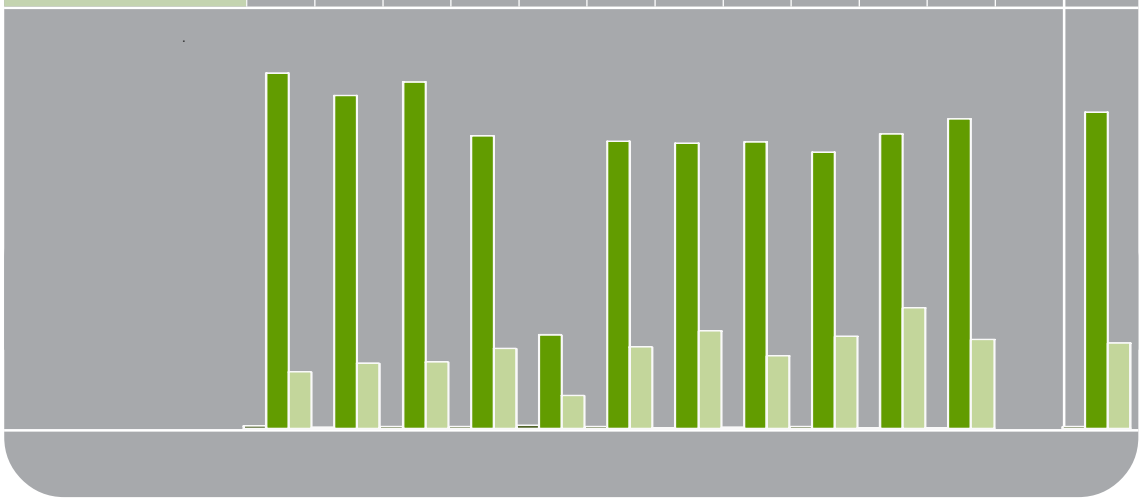
Barwon Water storage levels for the Geelong system at 36.4% capacity. Stage 4 restrictions apply with a Daylight Savings exemption to permit limited residential garden watering.

Water Discharge ML	November	Total
Ashponds (SP1)	150	1460
Mine (SP4)	0	0

Water Monitoring 17/11/2009	SP1 Ashpond		SP4 Mine		SP3 Final	
	EPA limit	Lab Result	EPA limit	Lab Result	EPA limit	Lab Result
pH	4-10	7.5	3-9	no	5-9	7.2
Susp. Solids	100	< 4	100	discharge	30	< 4
Colour	50	6	50	at	50	6
Aluminium	10	0.35	10	time	5.5	0.31
Iron	10	0.36	20	of	4.0	0.11
Zinc	0.4	0.096	2.0	sampling	0.30	0.030

WATER USAGE PER MONTH (ML)

Date	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Town Water	2.5	1.0	1.5	1.5	2.9	1.6	0.6	1.1	1.4	0.7	0.6		**15.4**
Bore Water	288	270	281	237	76	233	231	232	224	239	251		**2562**
Mine Water	46	53	54	65	27	66	79	59	75	98	72		**694**



peregrine falcons

We are proud to formally introduce Froona, Warrun and Barega, Alcoa Anglesea's falcon chicks for 2009. For the sixth year in a row, Peregrine Falcons have returned to Alcoa Anglesea to the nest box on top of the water tower. The nest box was moved to the opposite side of the tower earlier this year, and luckily Sheila was happy enough with her new home to lay four eggs.

However, only three of the four eggs hatched successfully this year. A similar event occurred in both 2006 and 2007 with only one and two out of four eggs hatching, respectively. There are several reasons why an egg may not hatch - drought, adults may be incompatible or an adult may have left the eggs resulting in a drop in incubation temperature.

Suggestions of names for our new additions came from all over the world. Our female chick is named Froona to recognise Froona Veldhuis from the Netherlands, a devoted advocate for the Peregrine Falcon, who died in April this year. Our two boys have been named Barega and Warrun. Both names are from the Aboriginal language meaning 'the wind' and 'the sky' respectively.

We had three attempts to schedule the banding of the falcon chicks. However, after forecast high winds and the travel tower being involved in a traffic accident (!), we were forced to cancel our scheduled banding for 2009.

This left the webcam followers to determine the sex of the three chicks. Male and female chicks usually look very similar, with the size difference being used to determine sex. The female chicks are usually noticeably larger. The general consensus was that we had one female and two male chicks, so the birds were named accordingly.

The two boys flew the coop much sooner than their sister, however Froona did eventually fledge. This has left us with a web cam (www.alcoa.com/falcons) that is more often that not looking at an empty nest box.

The web cam will shortly be switched off. We hope you have enjoyed the 2009 season on the web. If you have any feedback on the information and images we have provided this year, please contact us at ANGFalcons@alcoa.com.au.

PLANT OF THE ANGLESEA HEATH

BLACK ANTHER FLAX-LILY (*Dianella revoluta var. revoluta*)

Dianella....Diminutive form of Diana, goddess of Greek mythology

revoluta... from the latin *revolutus* meaning rolled back from margins referring to the recurved leaf margins

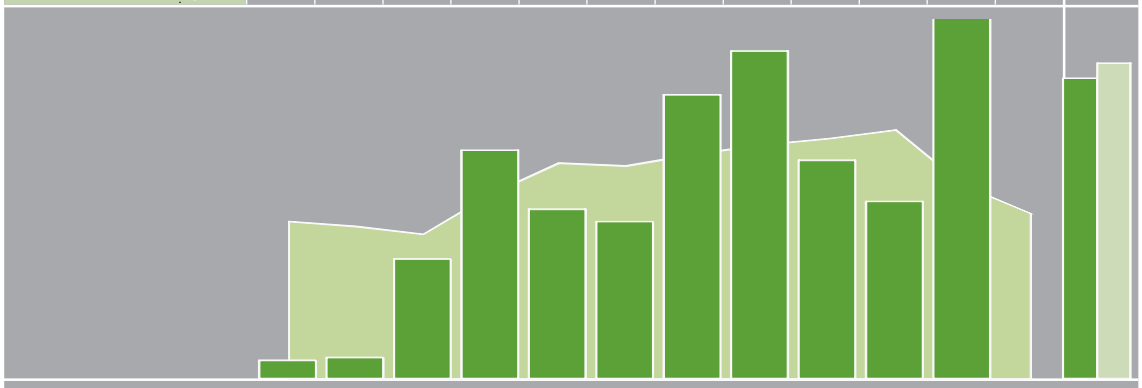
Size:	0.3 - 0.8m H x 0.5 - 1 m W
Form:	robust open tufted perennial, spreading by vigorous, branched rhizomes
Foliage:	dark green linear leaves to 70cm long with recurved leaf margins with are finely serrated
Flowers:	loose to dense panicles of blue to violet flowers with yellow filaments on the stamens on branched stems to 1 m high followed by small, shiny dark blue berries September to January
Habitat:	widespread in plains grassland, box and red gum woodland, dry, valley and damp sclerophyll forest, tea-tree heath

DIANELLA REVOLUTA

LAND

RAINFALL (mm)

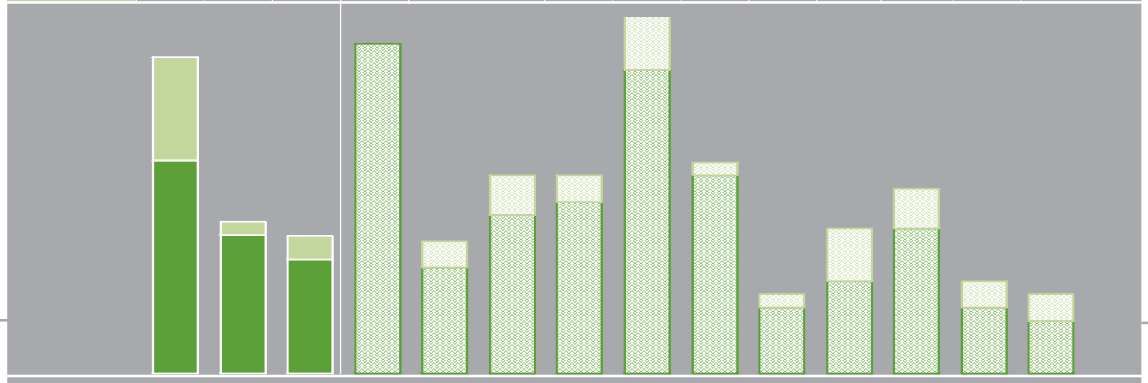
Month	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
2009 Rainfall	5.0	5.8	33.4	63.8	47.2	43.8	79.2	91.6	61.0	49.4	105.8		**586.0**
1968-2008 Average	43.9	42.5	40.4	51.6	60.2	59.5	62.6	65.2	67.0	69.4	53.9		**616.2**



WATER

TOWN WATER USE (ML)

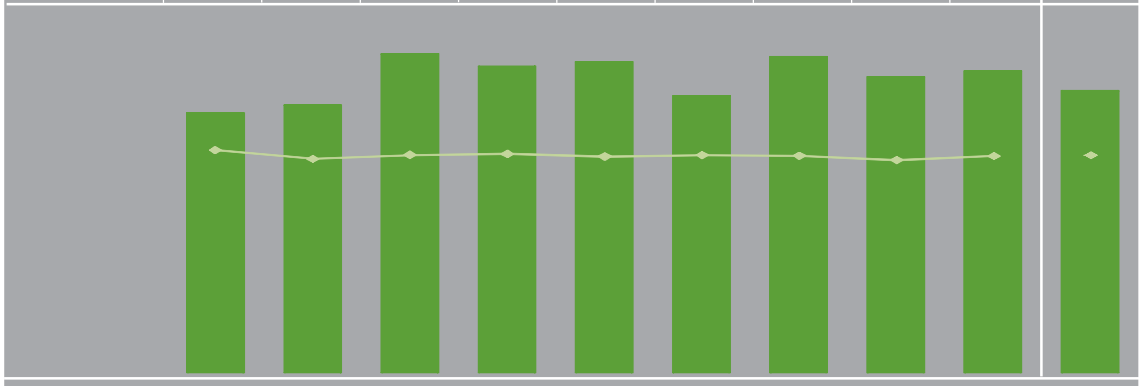
	2000	2008	2009	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Process	23.9	15.5	**12.8**	2.5	0.8	1.2	1.3	2.3	1.5	0.5	0.7	1.1	0.5	0.4	
Amenity	11.6	1.5	**2.6**	0.0	0.2	0.3	0.2	0.6	0.1	0.1	0.4	0.3	0.2	0.2	



AIR

GREENHOUSE GAS (GHG) TOTAL (Mt) & GHG EMISSION EFFICENCY (t/MWh)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
GHG Mt	1.23	1.27	1.50	1.45	1.47	1.31	1.49	1.40	1.42	**1.33**
GHG t/MWh	1.24	1.19	1.21	1.21	1.20	1.21	1.20	1.18	1.20	**1.21**



environmental improvement

Environmental Management Targets	November	2009 Total	Forecast	2009 Target
Reportable Environmental Incidents	0	1	1	0
Env Near Miss vs Env Incident Run Rate (ratio)	5	2.5	2.5	2.5
Monthly EHS ASAT Audit Completion (%)	100	93	93	90

Air Emission Targets	November	2009 Total	Forecast	2009 Target
Ambient SO_2 (no. readings > 200ppb)	0	2	2	0
Stack SO_2 (no. hrs > 100kg/min)	0	0	0	0
SO_2 Load Reductions (lost MWh)	954	32628	35595	N/A
GHG Efficiency (t CO_2 e/MWh)	1.16	1.21	1.21	1.20
Opacity (10 min av > 0.25g/m^3 normal operation)	0	0	0	0

Water Targets	November	2009 Total	Forecast	2009 Target
Town Water (ML)	0.6	15.5	16.9	14.2
Bore Water (ML)	251	2562	2795	4000

Waste Targets	November	2009 Total	Forecast	2009 Target
Waste to Landfill (t)	0.0	11.64	12.7	8.0
Solid Prescribed Waste to Landfill (t)	0.0	0.0	0.0	0.0

Mine Rehabilitation Targets	2009 Total		2009 Target
2009 Area to Clear (ha)	0.245		0.0
2009 Area to Rehabilitate (ha)	0.658		0.0

OUR ENVIRONMENT AND OUR EMPLOYEE ...ELISE JEFFERY

Hi Elise, you have been our 'webcam operator' since it was installed in 2006. What does this work involve?

I started posting regular updates in 2007 following the activities in the nest box during the breeding season. We have huge international interest in our falcons, so often when viewers log on the webcam is under the cover of darkness. The blog and still photos have proven a great way of keeping these viewers up to date. This year a dedicated email address was introduced to answer any enquiries from the website and so far we have had over 200 emails and my role was to answer them if requried.

Have you had any other involvement with the Peregrine Falcons at Alcoa Anglesea?

When the Peregrine Falcons returned to Alcoa Anglesea in 2003, the initial work involved luring the falcons away from the station with the installation of the nest box, monitoring the falcons, education for our employees and liaison with the Victorian Peregrine Project (VPP) for research/banding. Today the webcam has made the monitoring easier, but the other work continues as I advocate for the conservation of the internationally protected species at our site.

Thanks Elise - we know where to come when we want our Peregrine Falcon questions answered!