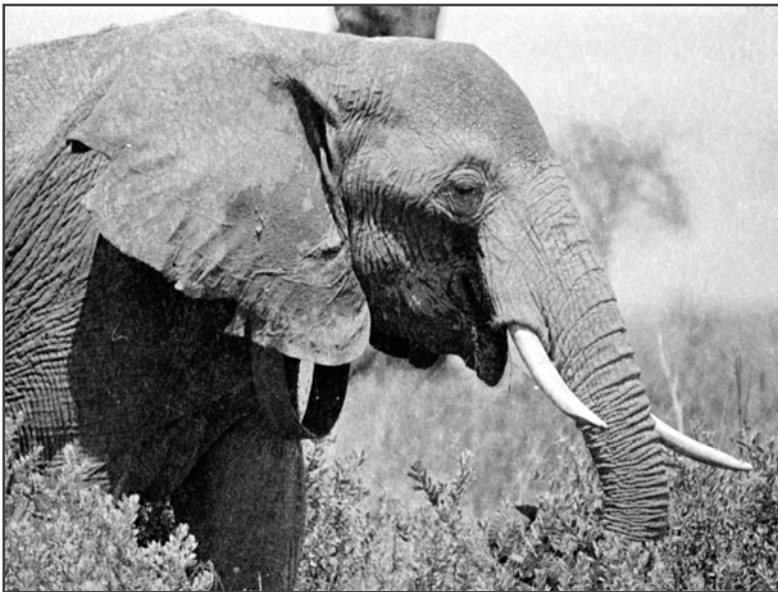


THE HISTORY OF THE EB FAMILY

I first met the EBs in August 1973. I was with my colleague Harvey Croze, who helped set up the Project. At the time we were working part-time on the study based in Nairobi. On that trip we photographed several families, and among them was a female with bony shoulders who carried her head low. We found this "head-low female" again in November of that year and photographed her along with an older female who had two U-shaped tears out of her right ear. I saw these two females together several more times over the next months. It appeared that they belonged to a small family consisting of about seven members.

In April 1974 Harvey and I put radio-collars on three adult females in the population. At that time we did not know the population well and thus we simply chose the animals opportunistically, trying to find matriarchs from different parts of the Park to determine their movements and distribution. We decided to start in the East. We went to the Longinye Swamp and the first group we came upon happened to be the family with the "head-low" and "U-nicks right" females. We chose the oldest female, the matriarch, and Harvey shot her with a dart containing an immobilizing drug. The collar was quickly secured, some measurements taken, and then she was given an antidote which took affect very rapidly.



Echo in 1974 with her radio collar

In a few minutes she was up on her feet and in less than half an hour she was back with her family. We were fascinated to see that the family, although very frightened, would not leave the scene but rather waited about 200 meters away watching nervously. On this day we were able to get a good look at the family and note down the age structure. There were two adult females, two adolescents--a male and female, and three calves--one about two years old, another about five years old, and the third about six years old.

We hadn't yet assigned the family an alphabetical code nor had we given the females names. Because we often saw these elephants closely associated with the family that we had already assigned the code EA to, we assigned them the code EB. We named the matriarch with the radio collar "Echo" because of the sounds her collar was making, and the second female "Emily". Echo was the female with the two U-shaped nicks, and Emily was the "head-low female".

The radio-tracking of Echo and the other two females, Bertha and Sona, proved to be very interesting. Bertha and her family moved in and out of the Park according to the seasons. Sona was the leader of one of the peripheral families and tended to stay outside the Park much of the time irrespective of seasons. Echo turned out to be a real homebody. Even when there was heavy rain and the Park was deserted by most of the elephants, Echo and her family could be found in Longinye Swamp or the Ol Tukai Orok woodlands right in the center of the Park. We sometimes laughed about her but this sedentary strategy may have been a wise one. During the 1970s up until the end of 1977 there was an unusual period of moderately heavy poaching of the Amboseli elephants when they ventured out of the Park on their migrations, and many bulls and large adult females disappeared. Bertha was last seen in March 1975. Sona disappeared in November 1977. Echo is alive today.

After we radio-collared Echo, I saw her family frequently, and by the time I set up my permanent camp in the Park in 1975 I knew them fairly well. Sometime during 1975 the adolescent male left the family. Unfortunately, I did not have a good photograph of him and thus I do not know whether he died or whether he is now among the adult males in the population. His departure left six members in the family. By watching their behavior I was able to work out which calves belonged to which females. The following was the structure at the end of 1975:

INDIVIDUAL	SEX	AGE
Echo	Adult F	about 30 years
Erin	F	6 years
Emily	Adult F	about 25 years
Eudora	F	3 years
Little Male	M	7 years
Ella	Adolescent female	about 10 years

I thought Ella could be Echo's daughter, but probably not Emily's (calves are born about four years apart). She could also be their sister and all three might have been the daughter of a much older female who died. (Many years later when we did DNA analyses of the population it was revealed that Echo and Ella were most likely sisters.)

Little Male was given his name because he looked to me like the quintessential young male with his smooth ears and slightly splayed, upcurved tusks. In those days all young males looked alike to me and I found them very difficult to identify. Today Little Male is nearly 40 years old and towers above all the adult females in the population. He is magnificent and should really be given a new name.

The EBs remained a small family for several years. There were two additions in 1976 when both Echo and Emily had calves. Unfortunately, 1976 was a year of severe drought and half the calves born to the population that year died. Emily's calf died two months after it was born. Echo's survived and was later named Eamon.

Emily had lost her calf in September 1976. Two months later the drought came to an end with good rains falling in December. In January 1977 I saw Emily in oestrus. She was being chased and guarded by the large, adult male M41, also known as Aristotle. Many other females came into oestrus and conceived in 1977 creating a baby boom in 1979. One of the first to conceive was Ella who had just reached sexual maturity at about 12 years old. Her first calf was born in December 1978. From then on the EB family thrived and grew. By the end of 1980 the family had increased to nine. Rainfall continued to be good or at least average over the next three years and more calves were born. Echo and Ella both had calves in 1982, and Echo's daughter Erin had her first calf in 1982 at the age of 13. By 1983 Little Male was spending less than 20% of his time with the family and thus by our definition he was considered independent. (While a female stays in her family for the rest of her life, males leave anywhere from 9-17 years old.) In October 1983 Emily gave birth to a female calf.

Unfortunately, 1984 turned out to be another drought year and Emily's calf died in July. The other EBs did remarkably well. Emily's calf was the only loss in the family during that period. Other families experienced major losses with up to four or five deaths. But sadly, well after the drought was over, Echo's son Eamon, disappeared. He presumably died from an illness or was speared by a Maasai warrior proving his manhood.

One measure of success and an indication of good condition in a female elephant is the rate at which she can produce calves and rear them. On average the females in Amboseli give birth once every four to five years. Some give birth after as little as three years, some after as long as nine years. Erin surprised me by producing a new calf after the shortest recorded birth interval--two years and seven months! She had given birth to a daughter, Edwina, in August 1982 and then gave birth to a second female, Eleanor, in March 1985. Echo was not far behind her. Echo had a daughter, Enid, in January 1982 and then had another daughter, Eliot, in April 1985 after three years and three months. All these individuals have survived.

Both Erin and Echo carried their 1985 calves through the terrible 1984 drought. It may have been this drought that prevented Emily's daughter, Eudora, from conceiving for such a long time. She was first seen in oestrus in June 1983 when she was 11 years old. She was in oestrus for an exceptionally long time (nearly two weeks when the normal period is four to six days) and she was chased and guarded by several bulls. Although there were older bulls around she didn't seem to realize that she would be better off staying close to one of them. Instead she lost her head and continually got chased by younger bulls. Some females learn very quickly that if they go into a consort relationship with a large, adult male they won't get chased and harassed by the younger bulls. Eudora didn't appear to learn this strategy or maybe she didn't want to! In any case she didn't get pregnant on that occasion or in January 1984 when she was seen in oestrus again, or in May 1984. We may have missed some of her oestrous periods but she was seen in oestrus in April, July and August, 1985 and January 1986. This was most unusual. Generally we would record

a female in oestrus for three or four days and she would give birth 22 months later with no oestrus activity in between. Eudora was not getting pregnant. She made such a fuss when she was in oestrus that we began thinking of her as a little coquette. Although we missed the crucial oestrus period, she must have conceived finally in December 1986, because she gave birth to a female calf in October 1988. She was an attentive mother to this calf, who was eventually named Elspeth.

Ella enjoying a mudwallow



In the meantime the family continued to grow with both Ella and Erin producing new calves. By the end of 1988 the family was flourishing with 15 members:

INDIVIDUAL	SEX	KNOWN OR ESTIMATED MONTH & YEAR OF BIRTH
Echo	F	1945
Eliot	F	4-85
Enid	F	1-82
Erin	F	1969
Edgar	M	10-88
Eleanor	F	3-85
Edwina	F	8-82
Emily	F	1941
Emo	M	5-80
Eudora	F	1972
Elspeth	F	12-88
Ella	F	1965
Eric	M	12-78
Ewan	M	10-82
Emma	F	2-87

But 1989 proved to be a year that would hold a tragedy for the EBs. It started out well enough. Emily gave birth to a male calf in March and he seemed very robust. It was after his birth that I noticed some interesting behavior between calves. I discovered that Elspeth was suckling from Emily (her grandmother) as well as from her own mother Eudora. I don't

know how long she had been doing so. I wondered when Emily's milk had begun to flow. In any case, when Emily's calf, eventually called Edo, was born there was serious competition between the two calves. Elspeth would constantly follow Emily and whenever Edo would try to suckle she would rush over and push him off the nipple and start suckling herself. Emily would gently try to push Elspeth away but she would scream in protest and Emily would give in. (I might add the Elspeth was an exceptionally fat calf who looked quilted because her skin bulged up in between the wrinkles.) However, Edo proved to be a tough and stubborn calf and he would not give in to the bullying. He would quickly go around to Emily's other side or he would wait for another chance. Elspeth periodically went



over to her own mother to suckle and then Edo took advantage of the opportunity to go to Emily.

Eudora, Elspeth and calves in 2007; Elspeth grew up to be a successful mother herself

In September 1989 an event occurred that would have profound repercussions in the

family and change the lives of both Edo and his older brother Emo. Their mother Emily died. She wasn't poached or speared, but there was evidence to indicate that she died at the hand of man anyway. She had eaten garbage. The lodges in Amboseli have not always been conscientious about disposing of food refuse. Both elephants and monkeys can sometimes get into the pits. One of the main garbage pits happens to be near the EBs' major route to and from Longinye swamp and if there are wafting smells of pineapple husks and orange peels, they will try to get at the source. Emily's carcass was found less than 100 yards from the garbage and a large number of unpleasant things were found in her stomach such as bottle tops, glass, plastic, and used batteries. Any one of these things could have perforated her intestines. It was a terrible waste and a terrible way to die.

Emily's death was the major event in this family's life. They had lost no other adult females since I had met them in 1973. The deaths of calves are no doubt distressing for the mothers, but the death of an adult female is disrupting to the whole family. Emily was the second oldest female in the family, the matriarch's closest ally, the mother to three family members and the grandmother to another. Nearly everyone in the family was going to be affected by this loss.

The most acutely affected member was, of course, Edo, who was only six months old. He could not live without Emily since he was still dependent on milk. Emily was first recorded missing on September 8, 1989. She had been seen alive the day before. Two more days went by and still she was not there although her calves, including Edo were. Their presence was a fairly definite sign that something had happened to Emily. My colleague Joyce Poole, who worked with me on the Project for many years, was in Amboseli at the time and recorded the events over the next days. Edo stayed close to his older sister Eudora and her calf Elspeth. He tried to suckle from Eudora but she rejected him with persistence and force.

In the meantime Joyce tried to find Emily. She searched by road and by plane, and eventually found her carcass by spotting a mass of vultures. Edo continued to try to suckle from Eudora who refused him. Although he was eating some vegetation it was not enough to sustain him. He got thinner and thinner over the next two weeks until all his bones stuck out and he was gaunt and drawn and lethargic. It is generally a policy of the Kenya wildlife department not to interfere with natural events in the Parks. However, in this case Joyce felt that the death had been caused by man, and perhaps interference was called for. She sent a message to Nairobi and a team came down and captured Edo just in time on September 23, two weeks after his mother had died. Left for only a few more days, he would have died. (The youngest orphan who has survived in Amboseli was 18 months old.) Edo was taken to Nairobi and cared for by Daphne Sheldrick who keeps an orphanage for baby elephants, usually ones whose mothers have been killed by poachers. It took Edo several weeks to recover physically and many more weeks to adjust to his new life without his mother and other close relatives. As I write this now Edo is 21 years old and roaming freely in Tsavo National Park with both wild and other orphaned elephants from all over Kenya.

But in September 1989 when Edo was orphaned, the very survival of all of Africa's elephants was in jeopardy, and much of my time was devoted to trying to raise the world's consciousness to the plight of the elephant. That October I went to Switzerland to attend the CITES meeting where, after a bitter battle, all international trade in ivory was banned. However, I knew the ban was not enough, that the only way to stop poaching was to reduce the demand for ivory, and to achieve this goal people needed to know more about elephants and what they would be losing if elephants continued to be poached. Thus, with public awareness in mind I went on to Britain to visit the BBC and discuss plans for making a film about elephants in Amboseli.

In January 1990 producer Marion Zunz, cameraman/photographer Martyn Colbeck, and I began what eventually became a 19 year project which involved making the film **Echo of the Elephants**; writing a companion book of the same name; making a film sequel, **Echo of the Elephants: The Next Generation**; writing a children's book, **Little Big Ears: The Story of Ely**; and after a gap of seven years making a third film about the EB family, **Echo of the Elephants: The Last Chapter?** Later we did a 13-part series for Animal Planet with the EBs as the central family. And in 2009 we made a final film about Echo. From the

beginning we knew we wanted to concentrate on one elephant family. We chose the EBs because they were relatively predictable in their movements, they were very tolerant of vehicles, and they had a very beautiful and distinctive-looking matriarch in Echo who by 1990 had gorgeous long sweeping tusks that almost crossed at the tips.

Many fascinating and exciting events occurred among Amboseli's elephants and within the family during the first 18-month filming period starting with the birth of Echo's crippled calf Ely in February 1990. He miraculously recovered and we were able to document his development for the first year and a half of his life. Ella had a calf, also a male in

December 1990. He was named Esau. In the meantime, Emo, Emily's son, left the family to strike out on his own at an earlier age than usual, almost certainly because his mother had died. During 1991 the family experienced a serious drought but under the leadership of wise, old Echo they came through it without any losses.



Enid, Ely and Echo on the day of Ely's birth in February 1990

Just after the first film was completed in June 1991, Erin gave birth to a male calf. This was very poor "family planning" on her part, because her older calf Edgar, at only two years and eight months old, was too young to be weaned. As the dry season progressed and there was less and less food for a young calf to eat he suffered from malnutrition and died in October. The new calf, eventually called Erwin, did well, but we wondered if he would suffer the same fate if Erin yet again gave birth after a short calving interval.

No births occurred over the next two and half years, but several females were observed in oestrus. Eudora was the first in June 1991, but she did not conceive then, because she was recorded in oestrus again in February 1992. On that occasion she was seen being mated twice by M135 a very handsome male. In July Echo was found being guarded by one of our favorite males, Beach Ball. A few weeks later Erin was recorded in oestrus.

In November 1992 Martyn Colbeck and I started work on the sequel, which we always referred to as "Echo II". We filmed over a period of four years and once again were amazingly lucky in the sequences we were able to obtain: the coming of age of Edwina,

Echo's granddaughter, and the calamity of her breaking her leg; the birth of Echo's new calf; the secret life of elephants at night; a fight between musth bulls; and the tragic story of the hunting of Amboseli's magnificent bulls in Tanzania.

During these years other passages occurred within the family. Eudora finally managed to carry a calf to full term and gave birth in November 1993, but sadly this calf died when it was only a few days old. Enid was observed in oestrus in February 1993 but she lost this calf at birth in November 1994. Ella's son Eric slowly made his move towards independence and by 1993 was completely separate from the family. Her younger son Ewan followed in 1995. Echo gave birth to a healthy female calf in May 1994--the delightful and mischievous Ebony; and the following year there were three more births: Erin, Ella and Edwina all gave birth to daughters. By the end of 1995 with the departure of the three males and the loss of Edo, the family numbered 17 and consisted of the following:

INDIVIDUAL	SEX	KNOWN OR ESTIMATED MONTH & YEAR OF BIRTH
Echo	F	1945
Ebony	F	5-94
Ely	M	2-90
Eliot	F	4-85
Enid	F	1-82
Erin	F	1969
Echeri	F	3-95
Erwin	M	6-91
Edwina	F	8-82
Eleanor	F	3-85
Emily	F	1941
Eudora	F	1972
Elspeth	F	12-88
Ella	F	1965
Elettra	F	6-95
Esau	M	12-90
Emma	F	2-87

Eudora came into oestrus again a few months after she lost her calf. This time she was successful and in March 1996 she gave birth to a big, healthy male calf. Enid too was successful her second time around. She gave birth to a son in February 1997. Not surprisingly, considering how well she took care of her little brother Ely, especially when he was crippled, Enid was a devoted and very conscientious mother.

In the meantime the EBs continued to do well, although there was one definite loss and another suspected one. Eliot, Echo's 13-year-old daughter gave birth right in my camp at 2

o'clock in the morning. I wasn't there but my colleague, Hamisi Mutinda, and the staff heard the noise of their excitement but thought it was a greeting ceremony. The next morning they found the placenta and a large patch of blood and liquid just in front of the dining tent. Hamisi went out searching and found the EBs nearby. There was a new calf with Eliot. Sadly about five days later it died.

Erica and Erin a month before tragedy struck



It seems that Echo also lost a calf, but probably to a miscarriage. She was found on her own with just her son Ely and was

bleeding from the reproductive track. About a month later she was in oestrus and being pursued by males so she was quickly making up for lost time. Erin, on the other hand, continued to be a speedy breeder. She had a new calf in April 1998, a daughter, when her previous calf Echeri was only three years and one month old. Luckily for Echeri, this was the year of El Nino and there was plenty of food so she did not suffer from being weaned.

From 1999 to 2003 all went smoothly for the EBs. Twelve calves were born. Poor Eliot had yet another calf in 2000 and it died immediately. Finally in 2002 she gave birth to a healthy male who was named Emilio. Eudora also had a calf in 2000 that died, but in 2002 she succeeded with a son born in November. Then in April 2003 tragedy struck the EBs. Erin seems to have been in the wrong place at the wrong time drinking out of a Maasai well. She was speared from above, two very deep wounds in her shoulder. We got the vets down from Nairobi to treat her twice but we couldn't save her.

It was a very sad and disturbing time for us and for the rest of the EBs. Martyn and I were filming Echo III at the time and recorded the whole saga. What was fascinated was that the family never left Erin. They stayed within one half mile of her the whole time she was suffering and frequently came back to her. At the time Erin had a 19 month old male calf. We did not think he would survive but we decided to wait and see how he was doing before we had him captured and sent to the elephant orphanage. We named him E-mail (the naming theme for the 2001 calves was internet terms). He stayed with his older sisters Erica and Echeri and also with Eliot who seemed to adopt him. Miraculously he survived and remains the youngest male orphan to make it.

Because Echo was such a strong leader, the family did not break down after Erin's death. One of her daughters, Edwina, tended to go off on her own with just her calves, but the rest of Erin's offspring stayed with Echo. In the meantime, Enid had another calf in April 2001, but she died of unknown causes in January 2003. Later in 2003 Ella had a male calf and her daughter Emma gave birth to her first calf, a female. At the end of 2003 the family composition and structure was as follows:

INDIVIDUAL	SEX	KNOWN OR ESTIMATED MONTH & YEAR OF BIRTH
Echo	F	1945
Emily Kate	F	8-00
Ebony	F	5-94
Eliot	F	4-85
Emilio	M	12-02
Enid	F	1-82
Ejac	M	2-97
(Erin's)	F	1969
Echeri	F	3-95
Edwina	F	8-82
Elaine	F	12-99
Europa	F	10-95
Eleanor	F	3-85
Elmo	M	5-99
Eudora	F	1972
Essien	M	11-02
Eldon	M	3-96
Elspeth	F	12-88
Explorer	M	5-00
Ella	F	1965
ELL03	M	4-03
Elettra	F	6-95
Emma	F	2-87
EMM03	F	12-03

The EB family continued to grow and thrive with the exception of poor Emilio. Everything was going well for this calf but tragically he was electrocuted on a fence around one of the lodges. He was standing in water when he touched the fence. It was a particularly sad loss because Eliot had already lost two calves.

From 2004 to May 2009, 16 more calves were born, including another daughter for Echo, born in January 2005 and finally a healthy female calf for Eliot born in August 2006. The

family was now very large by elephant standards—it had reached 40 members. In the first years of the Amboseli project the average family size was seven. That average eventually grew to 20 so that still means that Echo's family was the twice the size of the average. Echo was a very successful matriarch, but forces beyond her control conspired against her and her family.

There was low rainfall in 2008 and then almost no rain in 2009 resulting in the worst drought in living memory. In the end close to 400 elephants died, 83% of the wildebeest, 71% of the zebras, 61% of the buffaloes and 60-80% of the cattle. It was devastating for people and animals alike. .

Echo with her final calf, Esprit, in 2005



On May 3, 2009, Echo, the beloved and wonderful matriarch of the EB family died of natural causes probably related to the drought. Her family was distraught. It broke down into small subunits and

some of these units seemed not to know where to go and what to do. Echo's daughter Enid who was always by her side would not leave the area where Echo's carcass was. Ella and her subgroup left the Park altogether and they were not seen again for four months. Edwina broke off with just her calves; Eudora led part of another section; and Eliot led part of yet another. This breakdown was partly a result of the drought. All the families were splintering in their attempt to find the last bits of food. Many, many elephants died. The EB family did better than some because they didn't lose another adult female. Some of the families lost their matriarch plus three or four additional adult females.

In the end the EBs lost Echo and six calves. In 2010, when the drought was truly over, the sub-groups coalesced again with Ella as their leader. Ella at 46 years old is old and wise enough to be a good matriarch. She still tends to be independent and when she and her daughters and their offspring are not with the family Eudora, who is 39 years old, takes over. Edwina also often moves on her own with her daughters.

Miraculously two calves were born to the EBs after the drought. With a 22 month gestation period it means that they carried these calves during the drought, which is remarkable. Both were first calves born to young females: Erin's daughter Erica gave birth to a male in March 2010; and in November 2010 Edwina's daughter Europa also had a son.

As I write this now in 2011 the EBs are doing well. They appear to have recovered from the loss of Echo and have organized themselves around the older females who remain. They continue to be a very successful family who were taught well by the wise Echo.



Ella (fourth from the right), the new matriarch of the EB family, leads from the middle in traditional style

The present composition and structure of the family, indicating the sub-groups with leaders in bold, is as follows:

INDIVIDUAL	SEX	KNOWN MOTHER IF MOTHER DEAD	KNOWN OR ESTIMATED MONTH & YEAR OF BIRTH
Ella	F	?	1965
Eggnog	M		3-07
Edward Norton	M		4-03
Emmet	M		4-99
Elettra	F		6-95
Evaline	F		2-08
Emma	F		2-87
EMM09	M		3-09
Eudora	F	Emily	1972
Essien	M		11-02
Elspeth	F		12-88
Eugenie	F		12-05
Explorer	M		5-00

Enid	F	Echo	1-82
Elise	F		1-05
Eliot	F	Echo	4-85
Entito	F		8-06
Ebony	F	Echo	5-94
Emily Kate	F	Echo	8-00
Esprit	F	Echo	1-05
Eleanor	F	Erin	3-85
Enya	F		3-04
Elmo	M		5-99
Echeri	F	Erin	3-95
Espresso	M		2-07
Erica	F	Erin	4-98
Errol	M		3-10
E-Mail	M	Erin	9-01
Edwina	F	Erin	8-82
Elif	F		3-08
Elana	F		1-04
Elaine	F		1-99
Europa	F		1-95
EUR10	M		11-10

Independent Males					
Little Male	Jan-68	192	Emily?		
Eric	Dec-78	308	Ella		
Emo	May-80	355	Emily		
Ewan	Oct-82	370	Ella		
Ely	Feb-90	489	Echo		
Esau	Dec-90	490	Ella		
Erwin	Jun-91	509	Erin		
Eldon*	Mar-96	612	Eudora		
Ejac*	Feb-97	632	Enid		

Cynthia Moss
January 2011