**Supplementary Materials**

**Non-Aboriginal Ethnographic Reports of Fire-Spreading by Raptors in Northern Australia**

Below are the copied texts (from email exchanges), summarized data reports, and transcripts of live interviews recorded by Robert Gosford (“RG”). Ellipses (…) indicate omissions of non-relevant material.

**Supplementary Report 1**

**Bob Baker: Transcript of tape-recorded live interview, Tennant Creek NT, 10 June 2014**

RG: You were talking about when you first saw birds picking up fire.

BB: Yes, it was probably about 30 miles north of the homestead at De Grey [WA] and there is a lot of shit coastal scrub there – so we aren’t talking about them picking up Ironwood branches or nothing – and we are lighting mustering fires so blokes out on the flank … can see where we are – this was before walkie-talkies and all that sort of thing – and we’ve reined in waiting for a couple of blokes on the wing to bring their mob (of cattle) in and this – I’ll call then shit-hawks – he’s down, he probably grabbed a foot to fifteen inches maximum and he goes down and drops it twenty five to thirty yards away …

RG: In front of the fire?

BB: Yes.

RG: And that was how thick – as thick as your finger or … how thick?

BB: Yeah, about as thick as your finger. Dried out bloody coastal scrub that our mustering fire got going so it would only weigh a few ounces. There was only two white blokes in the camp, the rest were blackfellas. And one of the old blackfellas he said he’d seen it on a regular basis, a few times before. This was in 1969, ‘cause when I left there I went up the Kimberley’s and eventually to the Top End and I had three years as manager of the Douglas Daly Experimental Station. I went there initially as a ringer and horse-breaker …

RG: You spent time at Douglas Daly – did you ever see that behaviour again?

BB: No, that’s the only time I seen it, on De Grey station.

RG: What did the Aboriginal workers say about it?

BB: They said they’d seen it before. He said it wasn’t uncommon but that you didn’t see it every second day sort of thing. I was bloody amazed. I’d never seen it before and I’d worked on a lot of stations and I’ve never lived in town and it was the first and only time I seen it.

RG: I think you told Jasmin at the *Tennant Creek Times* that you were surprised by it …

BB: Definitely, I spent four years working my way up the west coast and it was common back in those days to light mustering fires – you aren’t going to burn the place out but that was how we kept in contact with each other. I hadn’t seen it on any of the places south of there – I’d worked on Lyons River, Wendon, Wanagee and then up on De Grey.

RG: And what about this stick?

BB: It was smouldering all right, and as they go it flames up and we are only talking a small stick and a lot of that shit coastal scrub is hollow and burns quickly.

RG: Did you see the fire start up from where the bird dropped it?

BB: Oh yeah, because this blackfella pulled my attention to it and when it comes to things in the bush you always listen to them you know.

RG: And with a fire you always keep your eye on where it is.

BB: Deadset, that coastal scrub – that stick wouldn’t have weighed any more than your cigarette lighter.

RG: A lot of birds about that day?

BB: Jesus you are stretching the friendship now ... it was a long time ago. But those shithawks come out of nowhere when you start a fire because they know that the feed is on.

RG: It makes sense doesn’t it, they’ve been here a long time.

BB: Yeah, I reckon twenty-five or thirty yards away. We are going back 45 years. I remember it clear as day. …

**Supplementary Report 2**

**Bob White: Transcript of tape-recorded live interview, Gorge Road, Katherine NT, 11 September 2014**

BW: My name is Bob White, I am the regional Fire Control Officer for the Gulf Region in the NT. I’ve been involved with fires in the Territory since 1978 with Parks & Wildlife and then with my own businesses and then with volunteer groups here in Katherine and then with Bushfires NT.

RG: You’ve been at a lot of fire-fronts – to put it lightly?

BW: Of all types – from urban-rural interfaces out to complete rural wilderness.

RG: You’ve done a fair bit of work with the indigenous ranger groups?

BW: Yes and I’ve worked hand-in-glove with them. I was one of the original fellers that set up the aerial control burning in Ngukurr. I was in Katherine and that was in my region. We had a hell of a job to get the old fellers to undertake burning but then it went from there. They saw the benefits of it and it went from there.

RG: When we talked at Roper Bar we talked about birds and fire and the number of birds and how quickly and how many come in …

BW: You will see that – you’ll start with a fire and I don’t know what attracts them – but they know that at the firefronts there are heaps of animals getting away from the fire. So that is their first picking – they’ll pick out – they’ll have a good lot. If there are a lot of birds there and it is a relatively small fire you’ll find that there will be some that will sit back and wait for the fire front to go and then they’ll get in. And then pick up bits and pieces and then of course the following day you’ve got – and I’m talking about what I call shit-hawks – kite hawks – that type of bird – there will be all sorts of birds scavenging around. Especially if you’ve had a dewy night and it has freshened up.

RG: I’m very interested in – and I’ve heard a variety of versions from Aboriginal and non-Aboriginal people … I’m particularly interested in talking to people who have seen birds picking up firesticks and other material around a firefront.

BW: Like I said, I’ve seen it – it is not common but it is not uncommon and when you talk about the Ngukurr region you have Mount McMinn and then, coming west, you get to Numul-numul and I was doing a fire between Mount McMinn and Numul-numul – down there - and on the top end of the Hodgson River. That is where I can remember it vividly in my mind that I actually saw what I reckon was some animals keeping this fire going. I looked at it and thought, “What the hell are you up to?”

RG: What did you see that day?

BW: Well it was what I call shit-hawks – Kite hawks - and they were actually picking up not what I call embers – they were picking up bits of wood. An ember as far as I’m concerned is a piece of charcoal – this was more like a piece of wood with – not big flames because they would burn themselves – but they looked like they were carting it along the ridge … there was like an escarpment coming down – I thought I had some pictures actually but I can’t find ‘em – it comes down off a hillside onto a little bit of flat and they were working like in this valley area. And we couldn’t get to it [the fire] to get it out that was another interesting thing. We were actually waiting for it to come down to us so we could attack it out on the flat.

RG: So you could see these birds …

BW: … yes, picking up stuff …

RG: More than one bird?

BW: Yes. Yeah it was … like they were working in like a school – as I think I mentioned to you that I’ve seen Wedgies [Wedge-tailed Eagles, *Aquila audax*] work the wallabies into wire-netting fences. It was much the same as that. But it was there that I saw it and then I’ve witnessed the odd one but not like … I’ve witnessed plenty of odd ones [since then].

RG: So just to summarise, you saw a group of birds working cooperatively …

BW: I reckon so, yes …

RG: … to push a fire that was regulated by the landscape – the walls of the ridges on either side of this small valley – so the birds were pushing this fire …

BW: Yes, up the valley. As you know, when it gets to the bottom of the ridge the fire will increase in speed going up the hillside. Of course the hills were dryer than the bottom. I reckon they were … I think they had an understanding of what they were doing.

RG: And they were cooperating?

BW: Yes.

**Supplementary Report 3**

**Nathan Ferguson: Transcript of tape-recorded interviews via telephone, 16 and 19 March 2017**

First Session:

NF: I came to the Northern Territory as a part of my Army career. … I left the military in 2007 and became a full-time firefighter with the Northern Territory Fire and Rescue Service. During my military service from 2000 all the way through to 2007 I was a volunteer fire fighter with the Northern Territory Volunteer Fire Service so I travelled around the Territory a fair bit in a voluntary capacity until I became a full-time member in 2007. … Basically I’ve worked everywhere in the Northern Territory apart from Nhulunbuy, I’ve worked in all the permanent stations, I’ve worked at all the fire stations in Darwin including an array of incidences right across the Darwin metropolitan urban interface, worked very closely with BushfiresNT on an urban interface as well and have worked extensively in Alice Springs and at the permanent station down there and worked at Yulara and at this time I’m the officer in charge of the Tennant Creek fire station and look after a fairly substantial area of central Australia. I’ve relieved at Katherine as well as working at Jabiru at Kakadu National Park. So I have worked from the savanna country, and from the south all the way to the tropical North.

RG: [Reads out excerpt of interview with Ferguson on fire-spreading, from *Tennant Creek Times*.]

NF: I can say that since the publication of the story in the *Tennant Creek Times* I have seen this behaviour twice now in Tennant Creek, once last year and to be honest with you, just yesterday morning …

RG: Can you just tell me where you have seen this behaviour and some of the circumstances?

NF: Well, probably the first time that I recognised what a bird was actually carrying was, to be honest with you, it was spoken about many times and back in 2000 or 2001 when I joined as a volunteer and I actually thought “No, there’s no way that a bird swooped down and pick up something that is on fire in a raging grass fire.” But I was proven wrong, 100% because since that time over about 16 or 17 years I’ve seen quite a number of times, predominantly in the Top End and like I said I saw it yesterday, the second time I’ve seen it in the Barkly [Tablelands] and the other time was last year. It was late in the season, the fuel and grasses were extremely dry, it was 100% cured and they were on extremely high fire danger days, you could even say extreme to very high fire days in the Barkly.

It seems on those days that the birds like to fly high up in the atmosphere in the winds that are predominantly southeasterly and westerly winds that we get here in the Barkly. You can see them on a clear day, you can actually see the kites really high in the sky. Whether or not they’re looking for smoke or looking for an opportunity I don’t know but it is become quite apparent because yesterday I watched them for about 15 minutes and they are really quite smart in what they’re doing.

Yesterday [Warrego Rd fire] I saw them pick up a couple of critters, no snakes or anything significant yesterday but I did see them a number of times swoop down, pick up something that was half burning and then actually drop it, but every time they dropped it they didn’t get far enough for whatever reason - maybe that the burning ember was too hot or the stick was too heavy for them to carry because it just dropped down inside the burnt area.

But on extreme days like we had last year with this fire on Kraut Downs just to the south of Tennant Creek it was very hot, very dry, very windy conditions … extreme fire conditions and we were in the thick of it fighting the fire with earthmoving machinery and they seemed to just… en masse.

When there is a large smoke plume, a number of times I saw them come down and they just pick up – whether it’s a full-blown stick or 1/2 burning stick – they would carry it for some distance. Some would carry longer than others. Why that happens I don’t know and basically they’ll drop it in front of the fire or they’ll drop it behind or to the side.

RG: Were they carrying these sticks in their beaks or in their talons?

NF: No, in their beaks. But, in saying that I have seen them do it with their claws on their feet as well.

RG: So that’s two instances, one yesterday where you saw them pick up sticks and drop them but no fire spreading – how many times yesterday?

NF: I’ve seen it maybe a dozen times in all over the years… Yesterday? Only twice yesterday.

RG: The fire yesterday was where?

NF: On the corner of Stuart Highway and Warrego Road, just to the north of town at Tennant Creek.

RG: How many times you think you saw [this behaviour] at the fire at Kraut Downs?

NF: Well, I would have only seen it once out there because I was fairly busy trying to get that fire under control. See the ironic thing is from the fire from yesterday and the fire at Kraut Downs, we were under the pump because we were trying to control that whereas yesterday the fire conditions were very subdued. I mean it was dry and it is drying out now but there is still a lot of moisture but you could go as far to say that the fuel around here at this time is only about 50 to 60% cured. But it was a hot day, it was in the early 40s yesterday and it was windy and it did have a fair bit of breeze. So any kind of fire with any kind of heat, it was actually moving but it was subdued if that makes sense. The fire conditions weren’t as bad as what it would be later in the year.

RG: What was the substrate — was it open forest yesterday or open spinifex country…

NF: It was sort of open forest spinifex country, with a lot of buffel grass and low trees but because of the heavy rains that we’ve had recently the local fuel loads have risen substantially, particularly around the town area in the parts where the water does sit and pool.

RG: What about the fire at Kraut Downs, was that similar sort of habitat?

NF: Yes that’s largely identical to the country at the Warrego Road. There are some pockets out there of snappy gum but the majority of it is rolling spinifex hills with a mixture of buffel grass, some snappy gums and the occasional large eucalyptus tree. Typical semi-arid conditions, generally speaking that area is very thick with spinifex, buffel and turpentine grasses as well which becomes very thick, you can’t walk through it.

RG: At the Kraut Downs fire how many birds did you see exhibiting that behaviour?

NF: I only saw it once but honestly the amount of birds varies with the size of the fire. If it’s in the middle of the season and it’s quite a large fire you could easily get three dozen birds - kites and hawks and whatever. Yesterday also there was probably a dozen, maybe 10. But it really depends on the ferocity of the fire. It’s almost as though they pick … It’s opportunistic if you know what I mean, when they’ve got a better chance you know of making, getting a meal – it’s sort of hard to explain. Because I think so much and I’ve seen it with the birds, they … it’s interesting because, they look for it. It’s the same in the Darwin area as well, they look for these fires, it’s like a kangaroo drawn to a headlight, and they are all there. When those birds get in front of the fire, it’s almost incredible to watch, particularly when you have heavy fuel loads and the fire is encroaching and moving and all of a sudden the fire comes to an area where it is clear or it’s a graded area and the amount of wildlife and critters that run across the cleared area is just phenomenal, especially in thick scrub, it is unbelievable. It’s quite amazing to watch you know, the insects and lizards and grasshoppers, mice, whatever. That’s what the birds are looking for. Often kites swoop down and pick up full-grown snakes and these snakes are not small, they’re big snakes. It is quite incredible to watch.

RG: Do you remember the first time that you saw this behaviour?

NF: I don’t remember the precise date but it would have been the dry season of 2000-2001. I was a member of the Howard Springs Volunteer Fire Brigade at that time and it would have been very early on in my time as a volunteer because a lot of the areas that are now developed up there now weren't at that time. Palmerston at that time was only a small satellite city compared to what it is now and a lot of the areas around Palmerston were just virgin tropical scrub. We used to go to a lot of fires on that urban interface around Palmerston.

The first time I saw it would have been a fire at the corner of Whitewood and Hillier roads in that area around Kowandi radio farms. We used to go to some very big fires around there which was a common occurrence - it used to be a real pain in the backside. I remember the fire was one of the first where I noticed all the birds and that’s where I saw it for the first time. There were a number of guys – fellow firefighters – that saw with me and they are still members of the volunteer brigade so if you ever wanted to speak to them I’m pretty sure that they’d talk to you about it.

RG: And that’s very different country, because it’s a dense spear grass understory and predominately *Mineata* eucalyptus forest – very high fuel load. Do you remember what you saw then?

NF: I remember it was near the Kowandi radio station … we were trying to hold the fire back from entering the station because the station area was all cut grass and it was mown and it was all lumped in big heaps and there was actually a boundary which we’d burnt to, that we’d conducted a back-burn off.

I remember because – clearly the kites were really thick and we’d be watching and all of a sudden they’d swoop down and next thing you know we had a fire behind us then. And we physically saw how it started as they dropped a large branch that was on fire and it actually started right in front of our eyes because the conditions were right. A hot day, windy, low humidity and dry as a witches tit and it just took off like a rocket. And then we’re fighting a fire on a mown grass area which is quite impossible to stop once the wind gets behind it. That would be the first time that I remembered that behaviour, seeing it for real and obviously I’ve seen a number of times since then, quite a number of times.

RG: Is there any one instance stands out – that was pretty dramatic …

NF: We were probably--distance-wise--probably about 40 or 50 metres away on our vehicles and to see that – I was on the back of a light unit – and to actually see that. That is what stands out. One of the most important things is that it seems to happen quite a lot is when you have a big fire, a large hot intense fire front - I’ve seen the kites – the kites come with any fire - but when it’s a big hot fire there’s a lot going on for us and where there is a large area alight it tends to happen a bit more in those circumstances, where the weather is a lot more unpredictable. That’s when a fire creates its own wind and its own localized atmosphere.

RG: You’ve been a professional firefighter for a long time, you know the kind of things that start fires – traditionally we attribute wildfires to lightning and humans - if all of a sudden you’ve got this other source of fire, birds that have been in the landscape for millions of years - what then? I’ve heard several accounts where people can only draw a conclusion that birds have spread fire, particularly when, for example, firefighters are working a fire, it’s cooled down, the evening winds have dropped off and the firies have done a fair bit of mopping up so it’s under control …

NF: I know exactly where you going with this and I can categorically say that on many occasions we have left fire grounds that have been under control, they’ve been blacked out and mopped up – and when I say that I say that with my tongue in cheek in regards to the Territory way of doing things, because some of our areas once the fuel is gone is nothing else left to burn. We don’t have large trees like they do in Victorian forests, we don’t have crowning fires et cetera et cetera - so I’ve seen it on many different occasions. We’ve made the area safe, we’ve secured the perimeter, we’ve mopped up, blacked out, spent another couple of hours on top of the initial firefight to then return two or three hours later and … it’s taken off again. I’ve never seen it and I can’t be sure but I would suspect that there would be an element there, particularly in the more remote areas where I’ve worked where there might’ve been a bit of intervention from our animal friends without a doubt.

RG: Dick Eussen’s example of a fire that took off again after being quietened down…

NF: That’s correct, that’s exactly right. Obviously I have never seen it but I can’t say 100% but I’ve had happen to me on a number of occasions, that’s happened to me here in Tennant Creek where I’ve said to myself that there was no possible way that that fire would have jumped the containment lines without one of two things happening, human intervention or something else has occurred.

RG: Fire grounds are fascinating things. Would you say that among the experienced firefighters you’ve worked with that there is a number of them would have seen this behaviour, has it been a topic of conversation or … ?

NF: I reckon that there’s a number of firefighters in the Territory would have seen it, and older firies as well. I don’t know about the younger firefighters or whether they would be interested or be looking for that kind of thing, … I mean, like I said I’m more than happy to pass on your details to some of these other people who I’m still in contact with. My volunteer brigade captain is still in that position at Howard Springs and her husband is still there and she’s been doing it for over 20 years and their son’s been doing it for 21 years. So I don’t think I’d have a problem getting observations from a number of other people. It definitely happens, there’s no doubt about it, I’ve seen it with my own two eyes and it is something that is quite interesting in how it happens.

RG: Is there is a possibility that we might have to revisit the history of fires in this landscape, particularly in the savanna? Just going back to Kraut Downs, that was in 2016? Do you remember when?

NF: That would have been in, in September 2016, about the middle of September.

RG: I just want to wrap up now, other any other instances – and we’ve talked about three times that you recall – how many more would you say that you have seen over the years?

NF: Look I would easily say that I’ve seen, easily, in my time at least a dozen times, but being able to recall times and dates … It’s one of those things that when you’ve seen it a couple of times you think “Oh, the kites are here.” But in saying that, one of the important things is that for us as firefighters, when were controlling something or trying to control a wildfire - our fires are very different in the Northern Territory to what they are down south. They are very quick, they are very intense, they run very quickly and it is almost like you need to be in front … three or four steps in front when you’re trying to control these fires. Very rarely is it just putting water on the fire front, we have massive back-burns, we have earthmoving machinery and we are using graded tracks to back-burn from. We still do the old-fashioned “water on the hot stuff” but nine times out of 10 our firefighting is – not so much in the Darwin urban interface – but out in the more rural areas, especially around Tennant Creek where I am working now - when we have larger fires, when this happens and it comes into its own, it’s more prevalent - but in saying that I’ve been to a large number of fires in the Darwin area and it happens there as well. Do you know the area around Lee Point, Lee Point Road?

RG: Yes.

NF: Well before all that area was developed a number of times out there I’ve seen this fire-spreading behaviour happen, but it is one of those things that when you’re fighting a fire you are concentrating on radio transmissions – and as a boss you are not specifically looking, but for me, as the boss and an incident controller on the job one of the things that I actually think about and actually observe is the birds, and what they are doing - especially when were almost finished at a job. Often at the end of a fire - because of the way we back-burn onto an active fire-front - there are two fire-fronts coming together to close the job and afterwards it will be finished in minutes - just mop up and blackout. But it is one of the things that I’m thinking about in the control of the fire, I think “I wonder if are gonna get a little feathered critter come down and pick up a stick and start the fire up again.” Another one, while were on the topic … another one that starts fires and I’ve seen this a number of times - is when wildlife, particularly kangaroos, wallabies or possums have been caught in the fire front and they come running out. They come running out of the fire at the worst possible time, so when you’ve got two fire fronts coming together as part of a back-burn and the coming together of those two firefights will happen usually on a cleared area, the very area that you’re trying to stop the fire from progressing to, and then all of a sudden you have a wallaby that unfortunately is on fire and comes out of the fire front all charged up on adrenaline and then it jumps straight into the area across the road into which you don’t want the fire to go. Then all of a sudden you’ve got the wind blowing that hard that off it goes again. I’ve seen that happen a couple of times as well. You’re up against … well, that’s just part of business.

RG: You’ve been talking about Black Kites - is that the bird you’ve been seeing?

NF: Yes

RG: Have you ever seen Brown Falcons …

NF: They’ve got a smaller beaks haven’t they? I’ve seen them but they’re not as aggressive as the kites though, but I couldn’t identify what’s what.

RG: You’ve worked with Aboriginal people a fair bit over the years?

NF: Yes, more so in Tennant Creek than anywhere else and obviously we work very closely with the Central Land Council and the Ranger coordinator and the Ranger program here and also with the Traditional Owners. I have very good working relationships with the TOs around Tennant Creek and know them on a first name basis.

RG: Have you ever heard any Aboriginal people talking about fire spreading down your way around Tennant Creek?

NF: No, not with the TOs or with other Aboriginal people.

RG: [refers to fieldwork plan 2017] One question we’re really interested in talking to people about is whether they think this behaviour is intentional or accidental behaviour. On your observations, with your experience do you think that it’s an accident or intentional?

NF: I think it’s intentional in all honesty. I think it’s intentional. I don’t think it’s accidental at all I think it’s intentional. I think that the birds are very aware of what’s happening around them because I think, they are very strategic. I know that sounds a bit strange but when you actually watch them they are very strategic, they will circle. I mean they are birds of prey, they are very strategic in what they are going for. So in my personal opinion I would so, yes 100% intentional. In every sense of the word they are there… they know what they're doing.

…

Second Session

NF: The fire on the Warrego Road on 15 March 2017 was in the morning at about 10:15 AM, it was about 41°C and there was a north-westerly wind blowing. The humidity was quite high, it was a bit sticky in the air. There were probably about a dozen, maybe up to 14 or 15 birds in the air, there may have been some other birds like crows or magpies but they don’t go into the active fire area. I definitely saw two fire carrying incidents inside the burnt area but not in the cleared area. Whether or not they were trying take it out into the unburnt area or not I couldn’t tell. I saw one with quite a decent sized stick, you could see that quite well and he was carrying that with his feet but when he… the other day when we were talking I was thinking after I’d spoken to you … a couple of times I’ve actually seen them pick it up with the claws on their feet or then pick it up with their beak and then grab it with the claws.

RG: What about the size of the stick, can you remember the length and thickness of the sticks you saw that day?

NF: They would be no thicker than my little finger but I’ve got a pretty decent little finger, I’m 6 foot four so my little finger would be a centimetre and 1/2 at least, so maybe a little bit smaller than that. But it was actually quite long. You could actually see that it was smoking, it had been on fire, it was well and truly on fire at one end and black on the other and they’d swoop down, and as I said I was thinking about this the other day after we spoke. I’ve actually seen two ways, I’ve seen them swoop down and bring it back up high with their beak and then swap it to their claws and that and I’ve actually seen that the other way as well, because when I’ve actually seen the hawks coming down and getting grasshoppers and stuff I’ve seen it both ways as well. Normally with snakes they will pick it up in their beak and they’ll transfer it and well actually fly – with something like a lizard – and they’ll actually fly, believe it or not what I’m about to tell you, they’ll actually pick at the head while they are flying. It’s quite amazing to watch. But when they pick up the burning stick all they do is they transfer from one to the other, either way and then they'll fly and then drop.

RG: What about length of the sticks?

NF: Well, it wouldn’t be as long as the bird, obviously but it wouldn’t be… It would be… Probably not 10 cm but probably 6 to 8 cm long – eight maximum. But I have actually seen very small sticks … very skinny sticks but as soon as they get up to any height but actually break apart, but what I saw on Warrego Road the other day was no bigger than 6 to 8 cm long, definitely.

RG: [referred to habitat as above.]

NF: Yes, lots of small snappy gums, a few 5 to 6 m snappy gums scattered amongst the buffel and the spinifex grass, the turkey bush and the turpentine bush. That’s the terrain. The fuel load in that area at the moment is very high, normally our fuel loads in the country are between 1.5 to 2.5 tonne per hectare, but our fuel loads in Tennant Creek at the moment are, particularly in the area, I estimate we are looking at between 3 1/2 to 4 ton per hectare. But it is still very green.

RG: [referred to comments re Warrego Road.]

NF: Whatever they were doing they didn’t get far enough, why they dropped it you know, I don’t know if they did it on purpose but they certainly didn’t drop them in front of the fire or behind.

… [Missed comments re Kraut Downs – tape stopped]

… Definitely I would have seen it I was on the back of the light unit.

RG: Whether other firefighters saw it on that day?

NF: Yes, this has definitely been spoken about quite often, especially with those of us been around, especially volunteers and that is been around for a long time. We had conversations about the kites, “Here we go again, the fucking kites are here, they’ll spread this fire.” Or like I said the other day, when you leave and then you go back there again in a totally separate area 300 or 400 meters away from where we’ve been mopping up and blacking out, I’ve heard many conversations when we’ve come back from the fire and you sit and have a cold drink and you talk about those “bloody kites.” There is another kind of bird up there, I don’t know what it is but they’re not as big as the kite. Very different colour, there are brownish in colour. They may be the same bird but I don’t know.

RG: it might be the Whistling Kite, which is also seen around fires, it has a round tail.

NF: Yeah, maybe, I don’t know.

RG: How many birds were there at that [Howard Springs 2000-2001 dry season] fire: can you remember?

NF: … I would easily say that there were hundreds of kites, hundreds of birds because that area is massive and that fire had a very large front. Back then we were at fires all day, not like nowadays. Back then we would do a very long day … Hundreds of birds, they would just be everywhere. I remember seeing the bird pick up the stick and he dropped it into a mown open area, I was on the back of a grass fire unit, a Land Cruiser Ute and I saw the kite come down, I saw him pick it up and he flew right over the top of us, quite close and he dropped it in the paddock directly opposite us. That paddock was dried clumps of mown grass that was as dry as a witches tit. I was banging on the roof of the truck saying “Get into the yard!” – we got the fire though, but it did take off though because the wind was blowing. That was in Kowandi. The kite just flew over the top and dropped the stick, straight inside the fenced area where the mown grass clumps were.

RG: Did he pick it up with his beak or with his talons?

NF: He picked it up with his claws, whatever they call them.

RG: How far do you think you carried it?

NF: Oh, from where we were to where he dropped it would have been no more than about 60 meters, maybe 75 meters max. It wasn’t right next to us, we were sitting on a fence line on the opposite side of the fence and the bird … He actually came down and he would have been an easy 40 meters away from us, picked it up, flew straight up and straight over the top of us and then dropped it.

RG: How big do you reckon that stick was?

NF: It was big enough to see because he was pretty close to us, but I remember the end of the stick glowing – that’s how close he was when he went over the top of us, he was a distance away but I could see very clearly.

RG: What time of day was that?

NF: That was the heat of the day early afternoon, before 2 o’clock anyway.

RG: So the stick was about little finger size 1.5 cm?

NF: Yes, definitely and probably, it’s hard to tell but probably 8 to 10 cm long, if that. Maybe a bit more than less.

**Supplementary Report 4.**

**Denise Angelo: Email received regarding our query on her previously published quote, 27 Feb. 2017**

… In 2004 *Tropical Topics* picked up on a short comment which I had contributed to *Wingspan* a little earlier. In my *Wingspan* note, I explained that as a linguist at an Aboriginal language centre I had been privileged on occasion to hear many traditional stories about local animals. I had heard of one species of hawk that “lit fires” … Initially I did not know how to take this description, and thought perhaps this was a possible reference to the bird's activities in a story. Over time, however, I got used to seeing these hawks’ behaviour around fires, always swooping and picking up things from the edge of the fire - prey of course, but I was sure I saw them pick up smoking bits and pieces and drop them on occasion. This gave me cause to re-evaluate my original assumption and I now saw hawks as, indeed, potential fire-lighters. Some years later when we had a grass fire racing along the banks towards our house when I lived in Katherine, I asked a fireman in attendance about how serious it was and he referred to the activities of the “blasted firehawks” as a problem for containing the firefront in a large open paddock of long dried grass. …

**Supplementary Report 5.**

**Kim Akerman: Questionnaire data supplied as part of an email exchange, 2016**

Name of observer: Kim Akerman. … Date: 28/6/1977. Time: 1300 (about) hours. Number of observations of birds carrying fire: 1. Description of fire-brand/stick i.e. size, visible flame/smoke, where carried & how far: short thin stick carried about 15-20 metres from fire front by black kite and dropped ahead of it. Stick was smoking and presumably burning. Bird species & characteristics: Black Kite. Number: 1. Other species present: Whistling Kite. Fire characteristics: Length of fire front (metres/km): 1 + Km. Source of fire (if known, i.e. lightning, pastoral, Fire Service etc.): grass fire lit by Mnt Elizabeth musterers. Wind speed and direction: south/southwest and very light. Fire intensity and speed: slow burn to southwest against the wind. Comments: with party of 4 Ngarinyin, Wunambal and Wororra men looking for goanna and bustard that might have been attracted to the fire. Habitat characteristics Fire habitat: (open grassland/open forest/closed forest etc): open forest. Fire height in habitat: i.e. ground-level, mid-level, “crowning” fire: ground grass and dead stuff only burning. … Comments & observations: This event was observed while participating in a 13 week “living off the bush” exercise with 13-15 members of the Mowanjum community Derby as part of the first Diabetes investigation experiment undertaken by the WA. Community Health Services.

Name of observer: Kim Akerman. Accompanied by (add separate sheet): alone at time. Date: May 1980/81. Time: 1030 (about) hours. Number of observations of birds carrying fire: 1. Description of fire-brand/stick i.e. size, visible flame/smoke, where carried & how far: short thin stick carried about 15-20 metres from fire front by black kite and dropped ahead of it. Stick was smoking and presumably burning. Bird species & characteristics: Black Kite. Number: 1. Other species present: Whistling Kite. Fire characteristics Length of fire front (metres/km): 2+ km along Broome-Derby road near Deep Creek, 50+ km east of Broome. Source of fire (if known, i.e. lightning, pastoral, Fire Service etc): grass fire unknown ignition point or reason. Comments: Noticed activity while driving to Derby. Habitat characteristics Fire habitat: (open grassland/open forest/closed forest etc): open forest. Fire height in habitat (i.e. ground-level, mid-level, “crowning” fire): ground leaf litter, grass and dead stuff only burning. Comments: ……A rapid sighting made while driving at about 90-100 k/hour in a vehicle along the road. Comments & observations: I have seen many fires in the Kimberley – invariably accompanied by hawks etc. and other birds but this is only the second time I had seen anything non-edible picked up and carried apart from nesting material.

**Supplementary Report 6**

**Jason Lewis: Email correspondence regarding a 2012 comment on Robert Gosford’s *Northern Myth* blog, Feb. 2017**

Bob Gosford …: “Jason, A few years ago you made the following comment at my Crikey blog *The Northern Myth*…

I’m a fire fighter on the Tiwi Islands during the dry and while I’ve never actually seen this first hand I’ve heard about and seen the results from fire hawks. It seems to be common knowledge up here that the hawks do intentionally pick up burning sticks and carry them across to an unburnt area to continue the fire. A huge part of our job up here is asset protection (lots of plantation up here to protect). We’ve had fires start well within a plantation from an unknown cause. Wind wasn’t blowing hard enough to transport anything burning that far into the plantation. That leaves us to believe that yes the hawks are picking up and starting fires further along. A right pain in the backside it is!

…do you have a specific location, even down to which island or finer-grained location references? …”

From: Jason Lewis …Ah yes, the fire hawks! … I no longer work on the islands, but the experience I recounted happened on several occasions though that one time proved to be the worst as we lost quite a lot of plantation due to the resulting fire that was started by what we believe was a hawk. This all happened on Melville Island. …this area was known as Pickertaramoor and it’s not far to the Tiwi College. …

On Sun, 26 Feb 2017, 08:36 MARK A BONTA … wrote: Thanks, Jason! While we have you on email  - were you working with any Aboriginal people on Melville, and if so, what group/language? Were they also aware of this behavior? …

From: Jason Lewis … Hi Mark, We did yeah. We worked with a dozen or so Tiwis from Melville, they were from both Pirlangimpi and Milikapiti. I'm not sure what groups/tribes/languages they were all from though. I do recall some of the older Tiwis mentioning it because they always seemed annoyed when the Hawks were flying about during a burn. Was always something else to have to worry about I suppose? …

**Supplementary Report 7**

**M.J.: Email exchange with Gosford, in response to Gosford’s requests for fire-spreading reports on *Northern Myth* blog, 4 Mar. 2016**

In late 2002, I was caretaker manager of Ivanhoe Station, near Kununurra in the Kimberley region of WA. The homestead is on the western bank of the Ord River, about 400m south of Ivanhoe Crossing, an old concrete ford across the Ord River. A bushfire had broken out one afternoon on the eastern (Kununurra) side of the river, opposite me, in scrub along the river (the scrub is approx 1-2 km thick, between Ivanhoe road and the Ord river). It was a substantial fire, with a front of about a kilometre or so. There were very strong easterly winds blowing it toward the river. The Ord River is about 100m wide. I was on the other side looking for any embers blowing over and putting out small spot fires as I found them. There is a lot of buffel grass on both banks and being late in the dry season, it was thick and dry, and a substantial fire hazard. My water pumps and horse paddocks were on the station side so I had a lot to protect. Kites (fork tail?) were very active during the fire, swooping down for insects and things, as you regularly see in that country. As the fire burnt to the eastern bank opposite me, I started to notice that a small number of kites were diving down behind the fire front and emerging with small smouldering sticks (approx 3-4 inches), flying over to my side, and dropping them in the buffel grass along the bank. I could see them carrying these sticks in their beak and dropping them down. I confirmed this by moving to where the sticks were dropping and seeing it smouldering in the grass. I was astounded at this observation. Soon, I had a lot of small fires going that were beyond my capacity to control, and the fire took hold, driven by the strong easterly wind. I then concentrated on moving my horses to safer ground. The fire burnt all the way to the ranges west of the homestead (approx 6 kms) and beyond, and burnt out most of my horse paddocks and destroyed the timber horse yards. Once the fire was raging on about a 1000m plus front to the west, the kites (hundreds of them) were very active in their pursuit of a feed.

 I have attached some photos I took at Ivanhoe station on a visit last year. Things essentially look the same as 2002. I observed the kites were dropping the burning sticks in this patch of grass between the homestead and the outhouse, about 200m. They may have been dropping them elsewhere but this is where I saw it occurring. You can see one of the horse paddock fences on the left of the photo. The fire was on the other (eastern) bank to the right of this pic, and the western (my) bank is only 25m to the right of the pic. This is where the fire established on my side and burnt me out. Houses were all OK, just lost feed, water pipes, fences and the old timber horse yards, about 500m south of this photo.

[Gosford response] Mac, Thanks and a fantastic set of observations - one point - they were carrying the lit/smouldering sticks in their beaks not their talons?

[MJ] …I just can’t remember that detail Bob. I had the beaks in my mind for some reason (and that may be correct) but the more I thought about it this afternoon, perhaps my memory has distorted that. It was them carrying them and dropping them in the grass that astounded me at the time. It’s something I’ve never forgotten, and losing the old timber horse yards was a big deal!

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