

2011



2011 FIRE REPORT



Plate 1: A 30 kilometre fireguard in Insiza district

Prevent Veld Fires-Construct Standard Fireguards

1.0 Introduction

The fire season recorded a 38% reduction in fire incidences compared with the previous year. A total of 713 770 hectares of land were burnt by veld fires in the current season while 1 152 413 hectares were burnt in the 2010 fire season, giving a difference of 438 643 hectares. Similarly, fewer lives (5) were lost in the current year compared to 25 lives lost in the 2010 fire season. All the deaths were due to attempts to put off fires. The victims included; a 37 year old man, a 5 year old boy, a 70 year old woman, a 63 year old man and a 99 year old woman. Infrastructure worth over \$227 214 was gutted down by fires.

Awareness campaigns recorded a total of 30 national fire week launches and 279 fire awareness meetings. Additional strategies included the pilot fire guard project in 15 districts where 615km were constructed. Intensive law enforcement resulted in the issuing of 240 tickets with a fine assessment of \$37 539, seventy eight (78) dockets were opened with a total of twenty four (24) cases receiving final judgement. Traditional courts handled 23 cases of veld fires. The most severe judgements were 6 months imprisonment from court proceedings and a beast from the traditional cases.

2. Environmental Education and Publicity

The National Fire Week was this launched in Mashonaland Central Province at Gee Jay Primary School, in Muzarabani District. A total of 1300 people comprising chiefs, school children, government departments as well as farmers attended the launch. *See plate 2.* The biggest audience was from Mashonaland East followed by Mashonaland Central. *See figure 1.* Mashonaland Central resultantly had a significant reduction in the total area burnt in comparison with other provinces as illustrated in figure 2.



Plate 2 Fire guard construction demonstrations during the National Fire launch at Gee Jay Primary School in Muzarabani

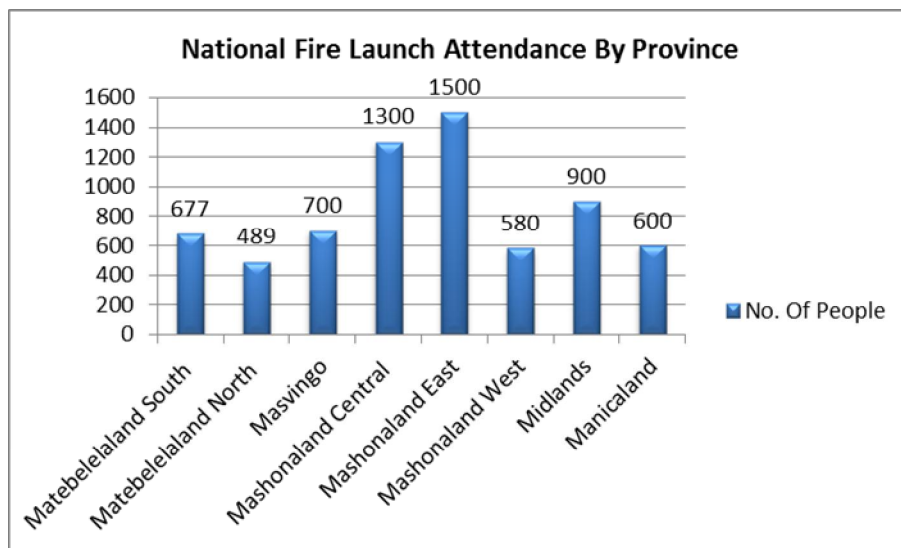


Figure 1: The 2011 National Fire Week Launch audience per province

The 2011 fire season overall had a reduction in area lost to fires. All provinces with the exception of Matebeleland North and Midlands recorded a decline in fires in the 2011 fire season. See Figure 2. The major causes of fires in the two provinces were failure to contain fires during fire guard construction and land clearing. The decrease in fires for the rest of the country can be attributed to stricter law enforcement, collaboration with ZRP and involvement of community leadership in veldt fire issues including the engagement of resource monitors who reported through cell phone messages a total of 150 fire incidences. Serious efforts were made towards building the capacity of Local Authorities in environmental (sub)committees establishment and operationalization. A total of 2 786 environment committees and sub-committee members were trained in fire management.

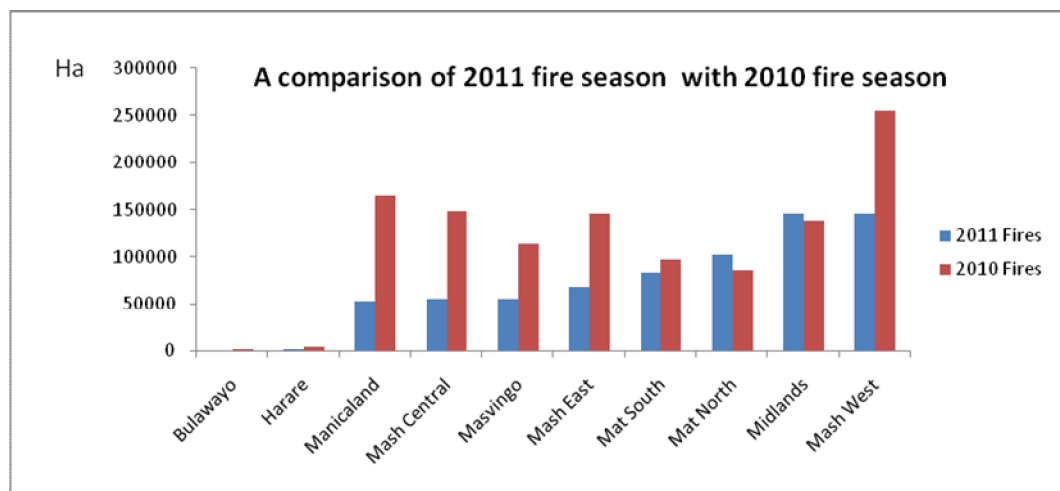


Figure 2: Comparison of area burnt in 2010 with area burnt in 2011

3. Fire Risk Prediction

The Agency earlier in the year did a fire risk prediction based on vegetation of the 15th of April 2011. The classification of fire risk was based on the amount of biomass (flammable material). The results indicated that 5% of the country which is equivalent to 2 000 585ha was at extreme risk of fires. Figure 3 refers.

Actual burnt area was 713 770 which is 36% of the predicted burnt area. Actual burnt area was less than the predicted this could be attributed to the afore mentioned initiatives by the Agency.

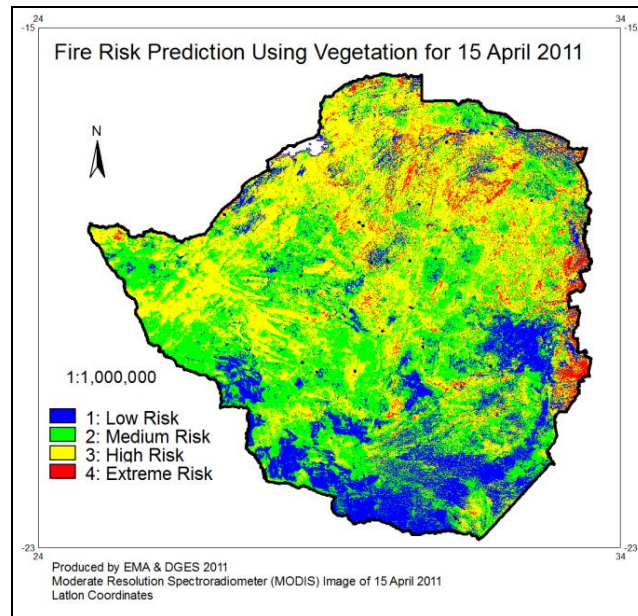


Figure 3: Fire Risk Prediction for 2011

The area affected by fire continued to rise as the fire season progressed due to biomass that was drying up and people clearing their fields. In preparation for the farming season October was noted to be the peak burning period during the fire season as shown in figure 4. Having noted that October was the peak burning period, ZRP in conjunction with EMA intensified their operations. A total of 78 fire cases were handled by ZRP throughout the fire season, the bulk of which (70%) were handled in October.

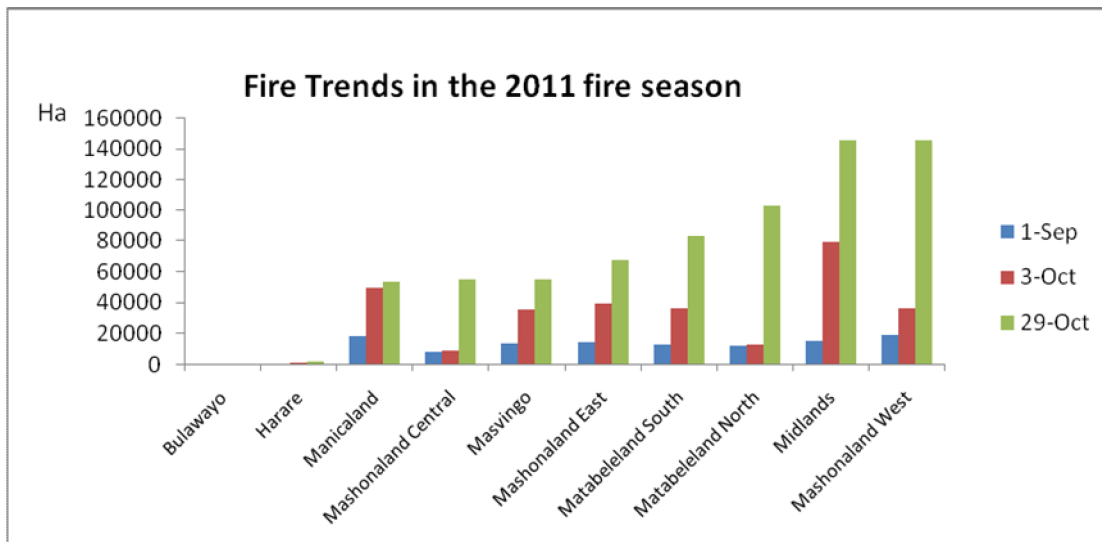


Figure 4: Trends in area burnt by province

4. Fires and land Use

About 80% of the fires occurred in A1, A2 Model areas, communal areas and resettlement areas ,*Figure 5 refers*. Of the 2.6 million hectares of land in protected areas, it is worth noting that 400 000ha equivalent to 90% of the safari area were burnt in the Dande Safari Area in Mbire district. Most protected areas did not experience severe veld fires since they had fire guards in place.

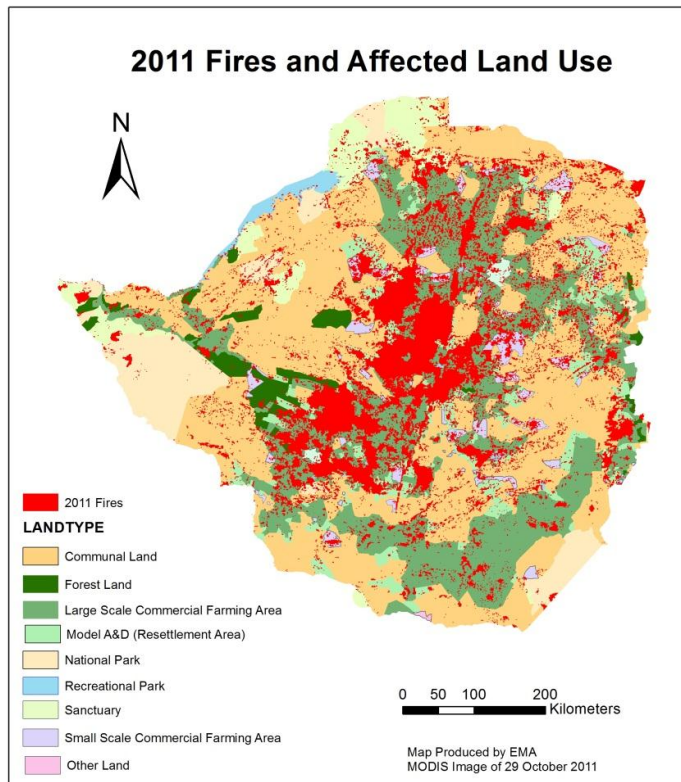


Figure 5: Fires and affected land use

5. Fires and Road Network

Most of the fires occurred along major roads as 60% of all the fires occurred within 500m from the major roads. Causes of roadside fires were noted to include bus stop fires, cigarette stubs and burning of road servitudes. Ground truthing conducted in Mashonaland Central indicated that no one took ownership of roadside fires hence the fires went on unextinguished. Generally the trend was that for any fires that were started in the communal and resettlement areas, communities were involved in putting out the fires. Table 1 shows the number of fires that occurred between 1m and 500m from the main road.

Table 1: Area burnt and distance from the main road

| Distance from the main road | 1m | 10m | 50m | 100m | 250m | 500m |
|-----------------------------|-------|--------|----------|----------|-----------|-----------|
| Area Burnt | 800ha | 8009ha | 40 295ha | 81 253ha | 208 267ha | 434 601ha |

5.1 Fire incidences and distances from the Road

Data analysis for 2011 fires was done to determine the type of relationships that exist between fire incidences and distance from the road for August, September and October months of the fire season.

In the analysis roads for each province were buffered at 0,10,50,250,500,1 000,1 500,2 000,4 000,6 000,8 000 and 10 000 metres away from the road.

Fire incidences for Mashonaland West and distance were correlated. A positive correlation of 0.82 was found to exist between fire incidences and 0 to 2 kilometres from the road, while a negative correlation of -0.82 exists from between fires and 2-10 kilometre distances from the road. Regression analysis of fires and distance from the road for Mashonaland West indicated that distance from the road can explain the likelihood of fire incidences 56% ($p=0.05$) of the time. Monthly linear regression analysis of fire incidences and distance from the road was also done, *Figure 7 refers*. The results indicate that distance from the road amongst other factors such as biomass and human behaviour in an area explains fire incidences experienced in an area. A total of 65% of fire incidences were less than 2 kilometres from the road in Mashonaland West.

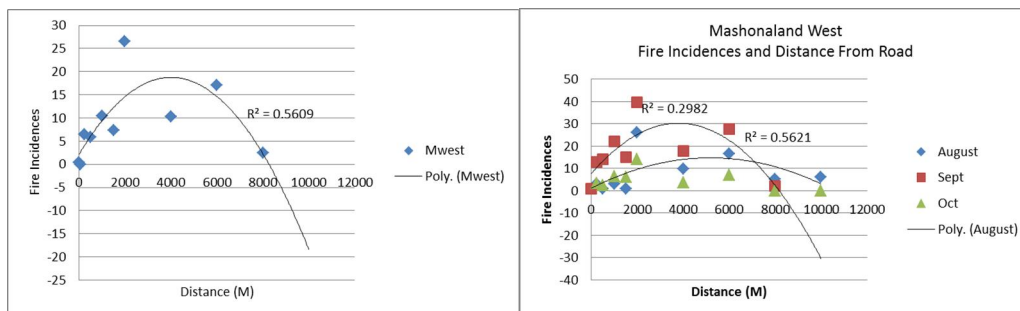


Figure 6: Fire Incidences and Roads

Figure 7: Monthly fire incidences and distance

Analysis was also done for Manicaland province which was least affected by fires. Manicaland generally had less fire incidences compared to Mashonaland West. Regression analysis of fires for Manicaland revealed that in 42% of the times fires started can be explained by distance from the road. Similar to Mashonaland West in Manicaland province a strong positive correlation of 0.88 was noted between fires and 0-2 Kilometres distance from the road while a significant negative correlation (-0.91) was noted between fire incidences and 2-10 kilometres from the road. The reason why most fire incidences are clustered between 0-2 kilometres from the road could be because of cigarette stubs, burning of road servitudes, and bus stop fires.

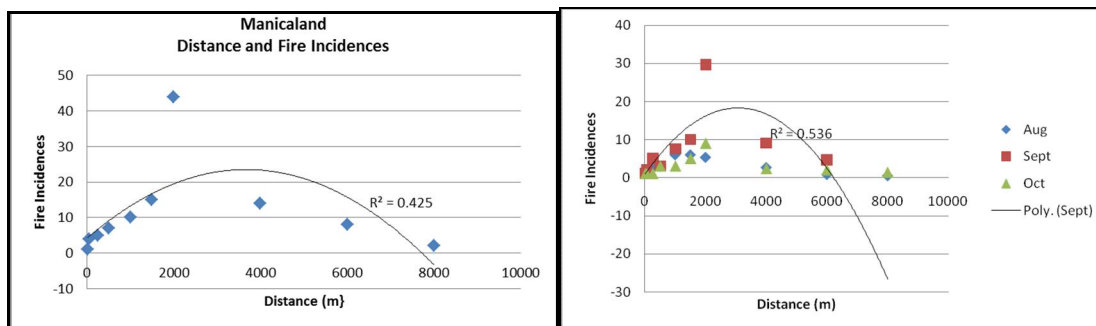


Figure 11 : Manicaland Fire Incidences and Roads Figure 12: Monthly fire incidences

6. Fire guard Project

The Agency in 2011 implemented 15 standard fire guard construction demonstration projects in 15 districts country wide. The fire demonstration projects have constructed fire guards with a total length of 615 km. The fire guards constructed on the demonstration sites have stopped 16 fire incidences as indicated in table 2. These fireguards were constructed using various methods such as controlled burning, ploughing and slashing.

Table 2: Length of fire guards constructed in 15 demonstration sites

| Province | District | Length (km) | Fire incidences prevented by demonstration projects |
|--------------|------------|--------------|---|
| Manicaland | Nyanga | 35 | 1 |
| Mash East | Chikomba | 43 | 2 |
| | Hwedza | 45 | 3 |
| Mash West | Zvimba | 35 | 2 |
| | Hurungwe | 77 | 1 |
| Mash Central | Mazowe | 20 | 1 |
| | Shamva | 19 | 1 |
| Mat North | Bubi | 28 | 3 |
| | Umguza | 35 | No fire in project area |
| Mat South | Umzingwane | 97 | 1 |
| | Insiza | 30 | No fire in project area |
| Masvingo | Masvingo | 31 | No fire in project area |
| | Gutu | 35 | 1 |
| Midlands | Somabhula | 50 | No fire in project area |
| | shurugwi | 35 | No fire in project area |
| Total | | 615km | 16 |



Plate 3: Fire beaters improvised by Mat South villagers from Conveyor belts



Plate 4: Fireguard Construction at Nyokeni Village

6.1 Impacts of Fireguard Demonstration Project

The fifteen (15) fireguard demonstration sites were replicated by one thousand five hundred and four (1504) households; See Table 3. In the 2011 fire season there was a marked decrease of fire incidences and hectarage lost in the project areas. There was a 52% reduction of fire incidences in the project demonstration areas compared to the 2010 fire season. The reduction is mainly due to the change in behaviour of people by not starting fires, reporting fires and arresting those that start fires. Community ownership of the projects also went a long way in ensuring that there were no fires lit in the project areas.

Table 3: Impacts of the fire projects

| Project Area | Affected Hectares in 2010 | Affected Hectares in 2011 | Incidences 2010 | Incidences 2011 | Families That replicated the project |
|--------------|---------------------------|---------------------------|-----------------|-----------------|--------------------------------------|
| Hwedza | 800 | 30 | 7 | 3 | 40 |
| Chikomba | 2 000 | 150 | 16 | 3 | 97 |
| Nyanga | 800 | 50 | 5 | 1 | 18 |
| Bubi | 3 900 | 1518 | 7 | 2 | 4 |
| Umguza | 5 300 | 0 | 4 | 0 | 310 |
| Hurungwe | 360 | 2 | 15 | 2 | 120 |
| Zvimba | 126 | 120 | 10 | 2 | 90 |
| Gutu | 370 | 1120 | 9 | 1 | 5 |
| Masvingo | 1170 | 1215 | 5 | 0 | 37 |
| Somabhula | 15 000 | 50 | 15 | 0 | 50 |
| Shurugwi | 2 500 | 600 | 12 | 0 | 25 |
| Insiza | 2 325 | 800 | 5 | 0 | 450 |
| Umzingwane | 2 500 | 152 | 7 | 1 | 258 |
| Total | 37 151 | 5 807,25 | 117 | 37 | 1 504 |

7.0 Prosecutions

Fire related prosecutions increased by 62% as enforcement of fire legislation intensified in 2011. Tickets for starting fires during the fire season increased by 800% from 30 tickets in 2010 to 240 tickets in 2011.

Table 4: Dockets opened and Tickets issued in 2010 and 2011

| Year | Total Tickets Issued | Fine Assessed | Dockets Opened |
|------|----------------------|---------------|----------------|
| 2010 | 30 | \$8 160 | 49 |
| 2011 | 240 | \$37 539 | 78 |

Enforcement coupled with environmental education was remarkable resulting in a sharp decrease in deaths and veld fire casualties. In 2011, 5 lives were lost to fires compared to 25

lives that were lost in 2010. Infrastructure and value of the infrastructure burnt by fires decreased from \$974 376 in 2010 to \$215 514 in 2011.

Table 5: Infrastructure Burnt in 2009, 2010 and 2011

| Item | 2009 | | 2010 | | 2011 | |
|---|--|--------------|---|-------------|---|--------------|
| | Item | Value (US\$) | Quantity/Type | Value(US\$) | Item | Value (US\$) |
| Plantations | i.4 Grazing areas (Midlands, Masvingo, Mat North, Mat South) | 71 839 | i. Forestry Plantations | 338 500 | i.1ha wattle trees | 6 000 |
| | ii. Sugar plantation 2ha (Masvingo) | | ii.Citrus Orchards (Mash Central & Mash West) | | ii. 186 orange trees | |
| | iii. 83,25ha gum plantation (Mash Central 83ha & Mat South 0,25ha) | | iii.Pine Plantation | | iii.1000 gum trees | |
| | iv. 3400ha timber plantation | | iv.Natural Forest 200 hectares | | | |
| Property | i.2 schools (Mat South, Mash Central) | 1 864 906 | i.ZESA Transmitters | 226 016 | i.94 Huts | 168 580 |
| | ii. Electricity power lines | | ii.Matopos Motel | | ii. 6 Vehicles | |
| | iii. electricity poles | | iii.Matopos National Museum | | iii.1 five roomed house | |
| | iv. power station | | iv.73 Huts | | iv. 4 700 Fencing poles and fence | |
| | v. 302 Jatropha plants | | v.Household goods | | v.Generator | |
| | vi. 5 properties | | | | vi.10 Blankets | |
| | vii. 3 lodges (Masvingo, Mat North, Mat South) | | | | vii.Cattle pan | |
| | viii. 30 homes | | | | viii.Irrigation pipes | |
| | ix. 40 huts | | | | ix.ZESA equipment (cables and insulators) | |
| Agricultural goods (Livestock, Game & crops) | i.25 gardens | 47 815 | i.600 Chickens | 409 860 | i.12.5 tonnes maize | 52 634 |
| | ii. 35 ha maize crop | | ii.4 goats | | ii.10ha wheat | |
| | iii. 31 goats | | iii. 3 donkeys | | iii.700kg fertiliser | |
| | | | | | iv. 6 cattle | |
| | | | | | v. 4 goats | |
| | | | | | vi.12 chickens | |

| | | | | | | |
|--------------|--|------------------|--------------------------------|----------------|---|----------------|
| | iv. agric input \$500 v. vegetation | | iv.15 cattle v.20 Elephants | | vii. 1 pig viii. 150kg soya beans ix. 5 bales tobacco | |
| Total | | 1 984 560 | | 974 376 | | 227 214 |

7.2 Fires and Districts Affected

| District | Hectares |
|------------------|----------|
| Beitbridge | 12431 |
| Beitbridge Urban | 102.625 |
| Bikita | 9150.876 |
| Bindura | 3608.877 |
| Bindura Urban | 460.887 |
| Binga | 8915.427 |
| Bubi | 25303.06 |
| Buhera | 10773.29 |
| Bulawayo | 2107.06 |
| Bulilima | 3175.546 |
| Mangwe | 10154.48 |
| Centenary | 3190.602 |
| Chegutu | 13990.9 |
| Chegutu Urban | 390.55 |
| Chikomba | 20426.13 |
| Chimanimani | 7392.959 |
| Chinhoyi | 2048.671 |
| Chipinge | 19734.48 |
| Chiredzi | 3878.32 |
| Chirumanzu | 13716.17 |

| District | Hectares |
|-----------------|----------|
| Kwekwe | 16522.97 |
| Kwekwe Urban | 805.022 |
| Lupane | 9016.087 |
| Makonde | 21039.44 |
| Makoni | 15744.98 |
| Marondera | 11767.92 |
| Marondera Urban | 523.476 |
| Masvingo | 8723.383 |
| Masvingo Urban | 587.767 |
| Matobo | 13715.74 |
| Mazowe | 31844.61 |
| Mberengwa | 4391.745 |
| Mt Darwin | 2688.48 |
| Mudzi | 5953.4 |
| Murehwa | 2964.845 |
| Mutare Rural | 31256.61 |
| Mutare Urban | 725.958 |
| Mutasa | 4681.889 |
| Mutoko | 1735.926 |
| Mwenezi | 6367.874 |

| | | | | |
|--------------|----------|--|------------------------|----------|
| Chirundu | 101.85 | | Nkayi | 4035.894 |
| Chitungwiza | 43.572 | | Norton | 241.465 |
| Chivi | 1420.589 | | Nyanga | 7666.729 |
| Epworth | 324.71 | | Redcliffe | 276.791 |
| Gokwe North | 2794.331 | | Rusape | 131.928 |
| Gokwe South | 3578.566 | | Rushinga | 1618.333 |
| Goromonzi | 12316.75 | | Ruwa Local Board | 362.781 |
| Guruve | 10315.3 | | Seke | 24493.89 |
| Gutu | 9627.602 | | Shamva | 14044.53 |
| Gwanda | 65472.33 | | Shurugwi | 4157.155 |
| Gwanda Urban | 455.559 | | Tsholotsho | 9422.598 |
| Gweru Rural | 11760.87 | | Umguzo | 9350.145 |
| Gweru Urban | 667.333 | | Umzingwane | 7930.662 |
| Harare Rural | 759.401 | | Uzumba Maramba Pfungwe | 1132 |
| Harare Urban | 298.941 | | Victoria Falls | 259.02 |
| Hurungwe | 41878.44 | | Zaka | 2911.873 |
| Hwange | 58923.47 | | Zvimba | 36723.78 |
| Kariba Urban | 318.228 | | Zvishavane | 12239.63 |
| Hwedza | 10773.64 | | Zvishavane Urban | 580.366 |
| Insiza | 59797.9 | | Kadoma Urban | 735.537 |
| Kadoma | 12576.36 | | Kariba | 76352.22 |

8.0 Recommendations

The following recommendations are being made following the 2011 fire season experiences:

- There is need to have trans-boundary MOU's on fire management with neighbouring countries. Experiences in Masvingo Province this fire season were that Gonarezhou was affected by a fire that started on the Mozambican side and could have been better extinguished with co-operation of both Zimbabweans and Mozambicans.
- There is need for inter-ministerial interventions at government level to draw up a programme that will assist newly resettled farmers to put fire guards around their properties.
- There is an urgent need for engagement of the Ministry of Lands and Resettlement to expedite the demarcation of boundaries in newly resettled areas as this is hampering efforts to have farmers construct fire guards.
- There is need for the corporate sector to assist farmers with more fire fighting equipment such as fire beaters and knapsack sprayers.
- Traditional leaders and police should be encouraged to continue taking a leading role in veldt fire issues and law enforcement.
- Stakeholder involvement should be with other arms such as Forestry Commission and Local Government needs to be heightened.
- The Local Authorities, Environment Committees and Environment Sub- Committees should be encouraged to continue managing fires.
- Ministry of transport of clear biomass on road servitudes to avoid veldt fires.